FEEDSTUFFS

★ A WEEKLY NEWSPAPER ★

FOR THE FEED MANUFACTURER, JOBBER, BROKER and DEALER

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Spencer Kellogg Purchases Staley Milling

BUFFALO, N.Y.—Spencer Kellogg & Sons, Inc., has announced purchase of the assets of the Staley Milling Co., Kansas City, Mo., for an undisclosed sum. Final details are being negotiated, with the merger to be effective Oct. 31.

The Buffalo firm, headed by Howard Kellogg, Jr., says it will operate the Staley company as a division, with present name, management and policies continued. Mr. Kellogg added that the acquisition was expected to prove mutually beneficial, with the capital resources of

(Turn to SPENCER KELLOGG, page 103)

Texas Broiler Unionization Move Called "Misguided"

By THOMAS E. LETCH
Feedstuffs Staff

Texas feed manufacturers are not much worried that efforts being made by the Texas Broiler Assn. to affiliate with an AFL-CIO union and organize broiler growers will revolutionize the broiler growing industry.

With few exceptions, feed manufacturers or those associated with the industry in Texas, and particularly in east Texas where the movement centers, discount the union affiliation as a "misguided move by a handful of poor growers who want to be guaranteed a profit forever and ever."

(Turn to TEXAS, page 8)

Grain Millers Union Expands Organization Plans for Feed Mills

MINNEAPOLIS—Delegates to the American Federation of Grain Millers convention here this week have voted an increase in dues to step up organizational work in feed mills, particularly in southeastern U.S.

Union officials reported that the need had arisen because of the trend toward decentralization of feed mills. Members who were formerly bunched in large plants, where feed was shipped by rail to other cities, are now being spread out in smaller, highly mechanized mills with products trucked to smaller communities.

Officers recommended the dues increase to maintain membership. They said organizing of smaller groups is more expensive, and thus the increase was necessary.

The board had prepared also an organizational program which included new union drives among feed

(Turn to UNION, page 4)

Control Group Observes 50th Anniversary, Acts on Drug and Other Problems

By ROGER BERGLUND
Feedstuffs Managing Editor

WASHINGTON — The Association of American Feed Control Officials paused this week to observe its 50th anniversary. But, while past progress and the present status of the association and control work were highlighted, the business activities at the AAFCO's golden anniversary convention also served to point out the progress, and problems, which continuing new feeding developments are bringing now and in the future for control officials and the feed industry.

The association met Oct. 15-16 at the Shoreham Hotel in Washington, with more than 300 control officials and industry representatives on hand.

Throughout the discussions and actions at the convention, there was further evidence of how continuing rapid developments in such things as medicated feeds, new ingredients, nutritional research and feed distribution changes are reflected in change and both problems and progress in control activities.

Medicated Feed Labeling

Among the highlights of the official action were some supplementary recommendations on medicated feed labeling (see story on page 4), new tentative definitions for fats and oils, new and changed definitions for several other ingredients and preliminary action on certain problems in connection with such things as medicated feeds.

The convention also was the occasion for the election of new officers and control officials' discussion of some organizational changes.

Special recognition of the association's 50th year came at a banquet held the evening of Oct. 15. (See acompanying story.) Convention talks also took note of the anniversary and the association's steady progress, with emphasis on the development of cooperation between control officials and the feed industry. Befitting

(Turn to AAFCO, page 99)

Number of Cattle on Feed Up 12% From Year Earlier

WASHINGTON — The number of cattle on feed for market in 13 major feeding states on Oct. 1 was estimated at 3,592,000 head, according to the U.S. Department of Agriculture. This was an increase of 12% from the 3,211,000 head on feed Oct. 1, a year earlier, but 16% below the number on feed July 1. For earlier quarters of this year the number on feed compared with a year earlier was as follows: July 1, up 16%; April 1, up 11%; Jan. 1, down 3%.

Cattle and calves on feed in nine of the Corn Belt states on Oct. 1, totaled 2,649,000 head, an increase of 12% from a year earlier. All Corn Belt states for which cattle on feed estimates are made show increases over Oct. 1, 1957, except Indiana and Ohio which are down 17% and 4% respectively. Iowa, the leading cattle feeding state, was up 16%, while Nebraska was up 21% and Illinois, 2%. Shipments of stocker and feeder cattle into nine of the Corn Belt states for the July-September quarter totaled 1,427,604 head only slightly above the same period in 1957.

Cattle on feed in Texas, Colorado, Arizona, and California totaled 943,-

(Turn to CATTLE, page 102)

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Honor L. E. Bopst On Retirement as AAFCO Secretary

WASHINGTON—"Mr. Feed Control," L. E. Bopst of College Park, Md., is retiring from the office of secretary of the Association of American Feed Control Officials.

Mr. Bopst is leaving the position after serving as secretary for more than half of the 50 years of existence of the AAFCO. Mr. Bopst, who is Maryland feed control official, was elected secretary in 1927 and re-elected every year thereafter.

Bruce Poundstone of Lexington, Ky., is succeeding Mr. Bopst as secretary.

Announcement of Les Bopst's retirement from the office of secretary was officially made at a special banquet held in connection with the association's 50th anniversary.

Special recognition of Mr. Bopst's service to the association, control work and industry was made at the banquet, and he was elected executive secretary emeritus and made a lifetime member of the group. He also was presented with a plaque, and gifts were presented to his family.

In addition, throughout the convention, speakers paid high tribute to

(Turn to L. E. BOPST, page 102)

Feed Industry May Be Involved—

FTC Will Investigate Food Industry

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — The Federal Trade Commission has announced a sweeping investigation of the food industry covering all aspects from the producer through retail channels.

The broad possibilities of this FTC action have been seen in some quarters as "sensational." It may be. But it would be more appropriate to classify it as vitally important to the entire food industry, and particularly to the feed industry, which is the cornerstone of the dollar volume of many foods consumed in this country today.

Complaints Prompt Action

In announcing the investigation the FTC pointed out that many complaints have been received concerning the development in recent years of "concentration of power, collusive price action and unfair competitive methods" in the industry.

"The investigation is directed toward the integration and concentration of economic power at the retail level of distribution in the industry," the announcement stated, emphasizing that "not only will the practices of retailers be considered, but also those of food wholesalers, manufacturers, distributors and brokers, if

(Turn to FTC, page 103)

FEEDSTUFFS *Features This Week*

MILL REMODELING: A Texas mill celebrates its 60th birthday with a face-lifting. **Page 10.**

DAIRY FEEDING: A leading authority on dairy cattle nutrition traces the past 50 years of advances in this field, on **page 18.**

LINEAR PROGRAMMING: The fourth article in a series concerning feed formulation by linear programming appears on **page 28.**

RUSSIAN AGRICULTURE: A first-hand observation of agriculture in Russia is reported on **page 54.**

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Recipe for An Investigation

THE INVESTIGATION OF THE FOOD INDUSTRY, announced in Washington this week by the Federal Trade Commission (page 1), appears likely to be one of the broadest investigations ever launched in the city now famous for searching studies. It could produce, as the TV master of ceremonies says, a really big show.

What direction it will take is not yet known for certain, but from present indications the investigation could head into practically every conceivable phase of the food business. The resolution directing the investigation states that FTC will not only study the "integration and concentration of economic power at the retail level of distribution of the food industry," but also "corporations operating as wholesalers, manufacturers, distributors, brokers or otherwise concerned with the distribution of food products." There seems to be little doubt, in the opinion of Washington observers, that in pursuing information about food supplier operations FTC will be delving into some areas of integration with which the feed industry is identified.

FTC's aim, as stated in its resolution, is to preserve competitive free enterprise in the food industry and prevent unfair methods of competition in the food industry. The agency presumably will search for information deemed pertinent in attempting to achieve this goal. However, it is probable that a substantial quantity of auxiliary facts and opinions will be turned up and exposed to public view.

ONE CAN BE QUITE CERTAIN that the findings of FTC will attract plenty of attention in the daily press. Anything that is likely to reveal information about how food prices are determined is bound to appeal to newspaper readers. Matters of much more grave importance than the price of a can of beans or a loaf of bread, while faithfully reported by the press, are not as likely to keep readers alert, particularly those who do the family shopping.

Aside from what impression reports of the investigation might make on the consuming public, food industry leaders will be primarily interested in what long-range impact the study might have on methods of doing business.

"Preliminary inquiries reveal that this is not to be a witch hunt or a punitive examination of food industry practices," John Cipperly, Feedstuffs' correspondent, reports from Washington. "It is probably to become a constructive move on the part of FTC to set up reasonable ground rules for the economic development of food distribution and sales to end some practices which in many quarters have been described as vicious."

This view suggests a moderate approach to ascertaining facts and, up to this point, at least, an acceptable approach. It is not likely, investigation or no investigation, that the progressive and highly competitive food industry could turn very far from the path of providing better, more conveniently-prepared food through attractive retail outlets and highly refined merchandising methods. While providing rules to prevent below-the-belt blows in business competition is accepted as a proper government function, it must be recognized, too, that government is concerned even more with seeing that the consumer is dealt with fairly.

The welfare of the consumer (not incidentally a voter, too) practically dictates a reasonable approach to the FTC's study and its ultimate recommendations. By the same token, presentation of facts to the FTC must be heavily underlined with the benefits consumers derive from the food industry's devotion to feeding the nation better than any other nation on earth.

Not by Cheese Alone

A COMMENT THE OTHER DAY in a bulletin put out by the Pacific Dairy & Poultry Assn. relates what a specialty food item is doing to the cheese business. The item is pizza, one of the most popular snack, lunch or supper dishes ever to come out of an all-night eatery or home freezer.

The bulletin says that an increasing number of midwestern plants are going into production of the Italian cheeses that are necessary to the making of a proper pizza. (This is the elastic kind, although in a pinch ordinary cheddar works well, too.) Growing popularity of pizza cheeses and other kinds is encouraging, not only to the dairy and poultry organization, but to the fellow who sells the feed to the man who feeds the cow, which produces the milk, which the cheesemaker eventually moves to the pizza palace.

Now here's a thought: Why not make it an even bigger thing and put some chicken on the pizza? Or turkey?

Our investigators report that they have not been in every pizza establishment in the U.S., but they are practically sure that poultry meat is not being used extensively, if at all, for brightening the taste of pizza. Why shouldn't it share equal billing with pepperoni, mushrooms, anchovies, pork sausage, green pepper and hamburger in this important function?

This suggestion (which we can't guarantee to be brand new) is offered for free to the poultry industry and pizza-lovers everywhere. It probably can't solve the broiler price problem, but it would be delicious to try, we'll bet.

A FEEDSTUFFS FORMULA FEEDS: HOW'S BUSINESS? FEATURE

Formula feed demand was generally good this week, although a mild slump had taken over in some areas of diversified farms where feeders were busy with fall farm work. Dairy and cattle feed demand was showing some pickup. Egg feeds are beginning to show a seasonal increase, while turkey feeds are showing the seasonal decline. Hog feed demand was spotty. It was off slightly in some areas as hog marketings increased and farmers stayed away from feed stores. It was good, however, when compared with a year ago. The feedstuff wholesale price index dropped to 79.2 this week, compared to 73.5 a year earlier. The feed grain index declined 1.7 points, to 64.8, compared with 66.6 a year ago. The hog-corn ratio, based on Chicago prices, was 15.4, down slightly from the 15.6 of a week ago, but ahead of the 14.5 a year earlier. (Ingredient prices in detail on pages 100-102.)

Northwest

Feed mill representatives reported spotty business during the past week. Some mills are running at near capacity and others have cut back because of the slower demand.

They were agreed, however, that "this is not the usual October slump." Business is better than a year ago but it just isn't as good as it has been in recent weeks. The lack of interest is credited primarily to the busy farm season.

Turkey demand has dropped off as the birds move to market and switch to grain. Dairy demand is fair at best and cattle feed demand has not shown much improvement. Hog feed demand, however, while not up to recent weeks, is still good. Egg feeds were showing a marked improvement in demand.

Prices on next week's lists are expected to be down $1 to $3 following the sharp drop in soybean meal, and lower prices for millfeeds and meat and bone meal.

Southwest

Sales of formula feed in the Southwest this week are running at about the same or a slightly better pace than a week earlier. Several manufacturers report a pickup in business, but there are others who have found sales a trifle slower. On the whole, however, business is running at a satisfactory pace with running time 5 to 6 days, averaging two shifts.

Along with the general dealer line of business, cattle feed orders have picked up sharply, several sales departments report. Although there is not too much supplementing on pastures being done, cattlemen in the northern sections of the Southwest are laying in supplies knowing that bad weather is not too far away.

With turkey feed volume dropping off quite rapidly now, swine feeds are among the best moving lines for practically every manufacturer. Egg feed interest is moderately good and a slight improvement in dairy feed movement has been noticed.

Those who notice a slackening in sales this week believe dealers may be holding off as prices come down. Farmers are also busy with harvesting and fall planting, a factor that might be keeping them from stocking up with feed.

With soybean oil meal leading the downtrend, ingredient prices are lower this week. Price lists for next week are expected to be anywhere from 50¢ to $2 ton lower.

Northeast

Consumers' supply lines became filled in some instances and the consumers backed away a little to digest their inventories. As a result, formula feed sales were steady to a trifle lower. Sales in the preceding week were a little above expectations.

Pastures are still being utilized and the market continues to be under the influence of seasonal after-feed on the farms.

Laying mashes carried the brunt of sales, followed by dairy concentrates and broiler feeds. Turkey feed demand continues to slip as the holiday season approaches.

Broilers and fryers were weak in the western New York area at 17@19¢ lb., with some prices going as low as 16¢. Demand was very light and supplies were liberal to heavy.

Eggs, however, were fully steady at 61@66¢ doz. for extra large whites. Demand was moderate, supplies were mostly adequate, but in some instances there was a shortage of extra large sizes.

Running time of formula feed manufacturers averaged about 40 hours last week.

Southeast

Southeastern feed demand has been about unchanged this week. Baby chick placements in the north Georgia broiler producing area were up slightly from the previous reporting period, but are down considerably from summer peak placements.

Broiler prices are reported to be at the 15¢ lb. level f.o.b. farms, and the amount of reduction in baby chick placements is not thought to be great enough to keep prices from sinking even lower than present levels. Broiler feeds are moving well and broiler feed prices are reported to be steady to slightly higher at most points.

Local supplies of shelled yellow corn have dwindled considerably during the past week, and it is thought that low levels for this season have now been reached and passed. Unsold corn is now in the hands of those

(Turn to MARKETS, (page 104)

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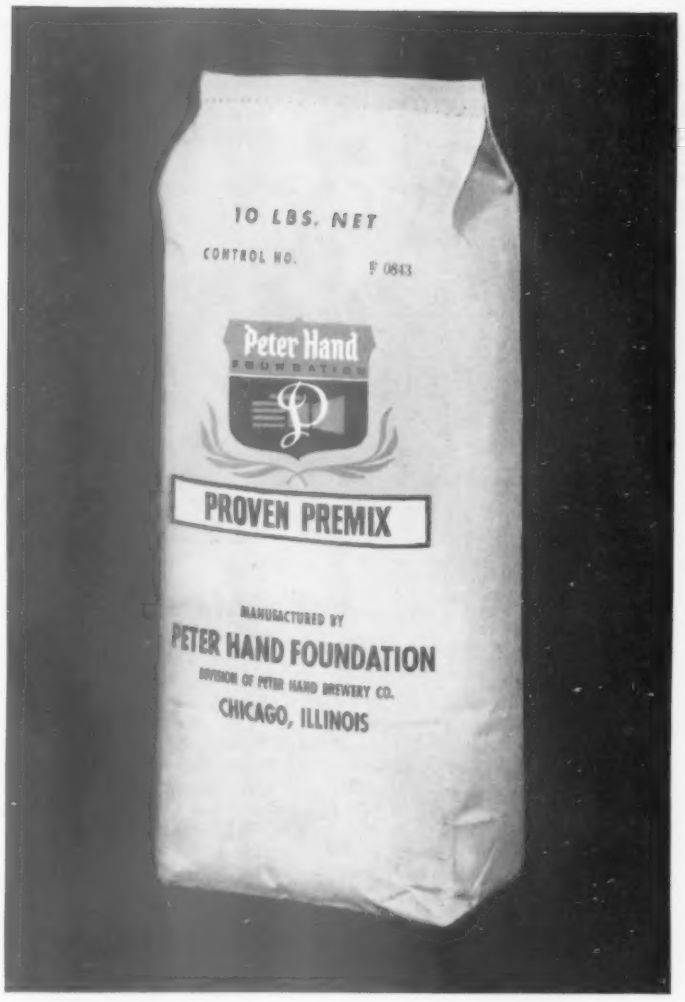

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Suggestions on Medicated Feed Labeling Reported

WASHINGTON — Additional recommendations regarding the labeling of medicated feeds were announced at the annual convention this week of the Association of American Feed Control Officials.

The new recommendations deal with the labeling of drug premixes, feeds containing a hormone plus other drugs, and feeds containing anthelmintics.

The additional suggestions on preparing labels for feeds containing drugs were reported by the medicated feed labeling committee, and action was taken by the AAFCO to include the report in the association's 1959 publication. The committee, made up of federal and state control officials and industry representatives, is headed by Dr. F. W. Quackenbush, Lafayette, Ind.

The recommendations which were reported supplement the recommendations and sample labels which are a part of the 1958 AAFCO publication.

Conclusions

The committee reported that it had reached the following conclusions at a meeting held at the time of the 1958 convention of the American Feed Manufacturers Assn.:

1. In labeling drug premixes which are intended for use in feeds, mixing or feeding directions for one or more uses should be provided on all containers, for wholesale as well as retail distribution (since wholesale products often get into retail channels). The following statement should also be added where applicable: "For other uses, see instructions provided by your supplier."

2. For feeds which contain a hormone plus other drugs, only the hormone is to appear in the product name. The product name, "Stilbestrol Mixture" or "Stilbestrol Mixture in Doe's Cattle Feed" may be followed by the words, "Medicated for the prevention of . . . " (or other statement of purpose) and then followed by the list and amounts of active drug ingredients. (See accompanying sample format.)

3. In labeling feeds which contain anthelmintics, use Type 1 label if feeding is to be continuous, Type 2 if feeding is to be intermittent, and Type 4 in either case if the product name includes the word "wormer."

100 lbs. Net Weight

BLUE BIRD

0.0011% DIETHYLSTILBESTROL MIXTURE

In

BLUE BIRD STEER FEED

Medicated

For fattening beef cattle and for reduction of diarrhea (etc.).

Feed at the rate of 2 lbs. per animal per day. Each pound contains 2 mg. of diethylstilbestrol.

CAUTION: Follow directions on other side of tag.

Active Drug Ingredients:

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Robin, Indiana

D. B. Walker

Purina Forms Major Division for Soybeans

ST. LOUIS — Ralston Purina Co. has set up its soybean operations as a major division with D. B. Walker as director, soybean division, it has been announced by Eldred A. Cayce, vice president and director of purchasing. The soybean division will have charge of the company's soybean buying, processing and oil merchandising. The company has five soybean plants.

Mr. Walker has been with Ralston Purina for 23 years. Most of that time he has been associated with the soybean phase of the company's business.

Hooker Announces Dicalcium Phosphate Expansion Program

NIAGARA FALLS, N. Y. — The phosphorus division of Hooker Chemical Corp. is expanding dicalcium phosphate production at its Columbia, Tenn., plant, and the enlarged facilities are expected to be in operation by April 1, 1959, it is announced by Robert E. Wilkin, senior vice president of Hooker. Dicalcium phosphate is an important animal and poultry feed supplement.

Mr. Wilkin also named Harold E. Frederick as phosphorus division sales manager, agricultural chemicals, and Errol F. Cook as responsible for technical service, agricultural chemicals, in the phosphorus division.

Mr. Frederick had been senior vice president — agricultural chemicals at Shea Chemical prior to its merger into Hooker last May. Mr. Cook, an expert on animal nutrition and a graduate of the University of Massachusetts, served the former Shea Chemical Corp. in a technical service capacity since the company's inception.

Mr. Frederick is a graduate of Ohio University and he had been a department manager with U.S. Rubber Co., a salesman with the Ralston Purina Co., feed plant manager of O. M. Scott & Sons Co., and when Scott Mills, Inc., was organized he was that company's secretary, treasurer, and general manager until coming to Shea Chemical in 1952.

Mr. Frederick is a past director and executive board member of the American Feed Manufacturers Assn., a past director of the Grain & Feed Dealers National Assn., past president of the Ohio Grain Mill & Feed Dealers Assn. for two terms, and a past president of the Ohio Poultry Council.

As division sales manager, agricultural chemicals, Mr. Frederick is responsible for sales of dicalcium phosphate, phosphate feed solution, phosphate fertilizer solution and precipitator dust.

The former Shea Chemical Corp., now Hooker's phosphorus division, has plants at Columbia, Tenn.; Jeffersonville, Ind.; Adams, Mass., and Dallas, Texas.

USDA Buys Dried Eggs, Turkeys

WASHINGTON—The U.S. Department of Agriculture has stated details of the recently-announced program to purchase dried whole egg solids for the National School Lunch Program and also announced purchases of turkeys for the same purpose.

The turkey purchases are part of a program which started July 31 and will run until further notice. Purchases during the week ending Oct. 8 totaled 930,000 lb.

Prices paid ranged from 32.97 to 35.24¢ lb. In making awards, consideration was given to transportation costs for distribution. Offers were accepted from eight of 12 bidders who offered a total of 2,790,000 lb. Approximately $313,000 of funds transferred by Congress from Section 32 for use under the National School Lunch Act will be expended for the purchase, bringing the total to $5.4 million since July 31.

First offers under the program to purchase dried whole egg solids were due in USDA by Oct. 15. Offers will be received weekly on each Wednesday until further notice, and acceptances will be made each week not later than Friday. Quantities to be purchased weekly will depend on prices and quantities offered. In making awards, USDA will take into consideration delivery points in relation to expected distribution.

Purchases will be made with funds transferred by Congress from Section 32 for use under the National School Lunch Act. The dried whole egg solids must be made from fresh chicken eggs and packed in 3-lb. cans, six cans to the case. The dried eggs must be produced by processors operating USDA-approved establishments under supervision of the grading branch of the poultry division of the USDA Agricultural Marketing Service.

Offers are to be in carlot quantities of 1,250 cases. Delivery will be during the 15 to 30-day period following the acceptance date. Schools were supplied with nearly 5 million pounds in a similar program in 1957.

UNION

(Continued from page 1)

mills in southeastern U.S. At its election Oct. 16, the union named George A. Zipoy, Minneapolis, vice president of a newly-formed Southeastern district. Mr. Zipoy will move there to direct the union's organizational drive mong feed mills of that area.

Officials asked for a raise in dues from the old figure of $1 to a new cost of $1.75. This proposal was defeated, but a vote for a 50¢ increase the following day was passed by an overwhelming margin.

The increase, based on an estimated 40,000 membership, will add about $240,000 to the union's treasury to pay for the new program.

Cooperative to Build New Feed Mill, Office

LYNNVILLE, IND. — Construction is under way here on a $200,000 building project which will include the erection of a feed mill by the Vanderburgh County Farm Bureau Cooperative, Lynnville.

The project includes the feed mill, a combined office building and store and a 100,000-gal. capacity gasoline and fuel oil bulk plant. Joe Wallace, manager, said the mill will have storage capacity for 8,000 bu. grain, 800 tons of feed and 1,000 tons of fertilizer in addition to machinery for processing grain and for cleaning and treating seed.

Alabama Nutrition Conference Dates, Speakers Named

AUBURN, ALA.—Recent research findings and trends in feeding poultry and livestock will be stressed at the Alabama Nutrition Conference to be held here Oct. 23-24.

Sponsored by the Alabama Feed Assn. and the School of Agriculture and extension service at Alabama Polytechnic Institute, the conference will get under way at 1:30 p.m. Oct. 23 and will adjourn at 5 p.m. the following day.

Staff members from Alabama Polytechnic Institute will be joined by feed industry representatives and college scientists from other states in the program.

Visiting scientists and industry representatives will present the morning session Oct. 24. Speakers scheduled and the subjects of their addresses are: Dr. G. F. Combs, University of Maryland, "Recent Developments in Broiler Nutrition"; Dr. T. J. Cunha, University of Florida, "New Ideas in Swine Feeding for the Future"; Dr. J. L. Williamson, Ralston Purina Co., "Cattle Nutrition Trends."

The opening session of the conference will be handled by Alabama Polytechnic Institute staff members. Speakers and their subjects are: Dr. George E. Hawkins, "Dairy Nutrition Research at Auburn"; Dr. K. M. Autrey, "Antibiotics for Milk Cows"; Dr. S. A. Edgar, "Status of Coccidiostats in Poultry Production"; J. G. Goodman, "Feeding Boron to Control Flies"; Dr. G. R. Ingram, "High Vitamin Ration for Diseased Broilers"; Dr. H. F. Tucker, "Current Investigations in Swine Nutrition."

Livestock and poultry specialists of the Alabama Extension Service will present the final session. Each will present in capsule form the recommendations made to farmers in Alabama with emphasis on feeding and management.

A banquet is planned for the evening of Oct. 23. Guest speaker is Ralph (Shug) Jordan, head football coach at Auburn. Dale F. King, head of the poultry department at Auburn, is also on the program. He will trace 50 years of progress in feeding livestock and poultry in a "Feed to Food" presentation.

William F. Butterley Dies in Kansas City

KANSAS CITY—Funeral services for William F. Butterley, 42, manager of the millfeed sales department for the Commander-Larabee Milling Co., division of Archer-Daniels-Midland Co. in Kansas City were held Oct. 17.

Mr. Butterley died Oct. 14 in St. Luke's Hospital where he had been receiving treatment several weeks for a heart condition. He had suffered a heart attack four years ago, but after several months of treatment was able to return to work.

Mr. Butterley joined Commander-Larabee after World War II service. He started in the billing department and later was assistant manager of the Southwest formula feed division of the company. After spending a short time in Minneapolis last year he was brought back to Kansas City in May to take charge of millfeed sales.

Surviving him are his widow, his mother and a sister.

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SMALL'S DEHYDRATED ALFALFA MEAL

Because the poultry feed lacked SMALL'S Dehydrated Alfalfa

she wonders where the yellow went . . .

It's "no sale"
when today's housewife picks up a fryer with a bleached white color, for she knows that golden yellow is her clue to quality in poultry.

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Research Meeting Focuses Attention on Amino Acids

By ROGER BERGLUND
Feedstuffs Managing Editor

WASHINGTON — The emphasis was on amino acids as more than 200 nutritionists and researchers gathered here this week for the annual meeting of the Animal Nutrition Research Council.

The meeting was held Oct. 15 at the Shoreham Hotel in connection with the annual convention of the Association of American Feed Control Officials.

A series of talks by industry and government scientists focused attention on amino acid values in feedstuffs and on poultry and livestock requirements for amino acids. As one speaker put it, the current rebirth of interest in amino acids may be ascribed to the necessity for rations capable of consistently high efficiency. However, there are many more problems as well as progress in this field, and the six papers on amino acids dealt with some of these problems as well as the progress.

The discussions dealt with such things as information and research on the biological availability of amino acids in feedstuffs, methods for determination of amino acids in feedstuffs, the use of amino acid values in formulating feeds—plus data and research work on amino acid requirements of poultry and livestock.

Industry, college and government scientists and feed men filled the meeting room to hear the extensive discussions of amino acids.

Officers Elected

Dr. Walter A. Glista, Wirthmore Feeds, Waltham, Mass., was elected chairman of the ANRC, succeeding Dr. David F. Green, Merck & Co., Inc., Rahway, N.J. Dr. Glista formerly was vice chairman.

Dr. Douglas Frost, Abbott Laboratories, North Chicago, Ill., was named vice chairman, and Irwin Olcott, Dawe's Laboratories, was reelected secretary-treasurer.

Newly elected to the board of trustees was Dr. E. P. Singsen, University of Connecticut, Storrs, succeeding Dr. Leo Friedman, Food and Drug Administration, Washington. Other board members are Dr. Hartley W. Howard, The Borden Co., New York; Raymond Allen, New England Byproducts Corp., Boston; Dr. Laura M. Flynn, University of Missouri, Columbia; Dr. J. A. Campbell, Canadian Department of National Health and Welfare; Dr. H. W. Titus, Limestone Products Corp. of America, Newton, N.J.

Dr. K. H. Maddy, Monsanto Chemical Co., St. Louis, was program chairman and presided at the morning session of the day-long meeting. Dr. H. L. Wilcke, Ralston Purina Co., St. Louis, presided at the afternoon meeting. The luncheon speaker was Dr. Jesse P. Greenstein, National Institutes of Health, Bethesda, Md., speaking on water-soluble, chemically-defined diets.

The ANRC is a steadily growing organization and now has well over 300 members, made up of scientific and research personnel from experiment stations, industry, federal government research and control, and state control agencies. Persons qualified by professional training or experience and actively interested in nutrition research or vitamin assay work are eligible for membership.

Among the objectives of the group are stimulation of interest in animal nutrition research and the promotion of collaborative studies of assay methods for nutritional factors. One of the aims is development of standard research methods in connection with chemical studies, animal nutrition and statistics. Each year the meeting has a particular theme—such as amino acids this year.

The group was originally formed in 1939 and has been growing since that time, particularly in recent years.

The next meeting will be held Oct. 14, 1959, at the Shoreham Hotel in Washington.

Summaries of technical papers follow:

Biological Availability of Amino Acids in Feedstuffs—Dr. C. R. Grau, University of California, Davis: In recent years many attempts have been made to estimate the amounts of available amino acids in various foods. This is a complex problem because the study of one amino acid is necessarily complicated by the presence of other amino acids. Nevertheless, some estimates of amino acid availability have been made, and further work in the field will produce additional data.

The method developed in our laboratory utilizes a mixture of crystalline amino acids to supply the dietary essentials, while the protein source being tested is used to supply the non-essentials. If a single essential amino acid is omitted from the mixture, the test protein can be evaluated as a source of this one amino acid. The criterion used is growth of chicks during a six-day period starting at about 10 days of age. The quantitative data are obtained by determining the growth rate when the diet contains all the amino acids except the one being studied (these animals lose weight), and the rate when a slight excess of the amino acid plus a fixed level (usually 10%) of the test protein is fed.

Use of this method to study fish meals and other protein feedstuffs has revealed wide variations in available amino acid contents, as compared to the amounts of amino acids found to be present by microbiological analy-

(Turn to ANRC, page 104)

Record September Set by Wirthmore

WALTHAM, MASS. — Wirthmore Feeds, Inc., has just recorded the largest September tonnage in the history of the company, it was announced this week by Robert Emmons, general sales manager.

"More intensive on-the-farm selling by dealers has combined with our progressive bulk delivery program to make this substantial gain possible," Mr. Emmons stated.

Wirthmore now operates eight feed-mixing mills servicing 17 northeast states, with new headquarters and research facilities in Waltham.

Twin City Nutrition Seminar Set Oct. 21

ST. PAUL, MINN—The first Twin City Nutrition Seminar of a series of seven planned for the 1958-59 series will be held Oct. 21 at Peters Hall on the St. Paul campus of the University of Minnesota.

Speakers for the first seminar and their subjects are: Dr. Max Schultze, University of Minnesota biochemistry department, "Radiation Injury Simulated by a Toxic Substance," and Dr. Harvey H. Hoyt, University of Minnesota college of veterinary medicine, "Disease and Nutrition Problems in the Field."

J. Wesley Nelson, Cargill, Inc., Minneapolis, secretary of the group, said the seven meetings in the 1958-59 series are scheduled for the third Tuesday in the month. There will be no December meeting. The sessions are set for 7:30 p. m.

Dairy Day Set

STATE COLLEGE, MISS. — A Dairy Day to be held Oct. 24, on the Mississippi State University campus here, has been announced, by the school's director of the division of agriculture.

USDA Oct. 1, 1958, Crop Production Estimate

Crop—	Yield per acre—Average 1947-56	Yield per acre—1957	Yield per acre—Indicated Oct. 1, 1958*	Production (in thousands)—Average 1947-56	Production (in thousands)—1957	Production (in thousands)—Indicated Sept. 1, 1958	Production (in thousands)—Indicated Oct. 1, 1958*
Corn, all, bu.	38.8	46.8	50.4	3,144,304	3,402,832	3,588,766	3,686,218
Wheat, all, bu.	17.7	21.7	27.0	1,116,216	947,102	1,446,464	1,449,498
Winter, bu.	18.9	22.4	28.1	849,604	707,201	1,170,768	1,170,768
All spring, bu.	14.6	19.9	23.2	266,611	239,901	275,696	278,730
Durum, bu.	11.9	17.4	22.8	29,904	39,680	21,224	22,053
Other spring, bu.	14.9	20.5	23.2	236,707	200,221	254,472	256,677
Oats, bu.	34.3	37.4	44.5	1,293,976	1,308,360	1,419,351	1,419,351
Barley, bu.	27.2	29.0	31.2	302,770	435,695	466,301	466,301
Rye, bu.	12.8	15.9	18.3	22,359	26,528	34,093	34,093
Flaxseed, bu.	9.0	5.3	10.2	41,170	25,754	37,469	39,969
Sorghum grain, bu.	19.6	28.9	36.4	165,998	561,977	579,132	607,118
Cotton, bale	†317	†388	†469	14,136	10,964	12,105	11,675
Hay, all, ton	1.42	1.65	1.65	105,094	121,402	118,471	120,374
Hay, wild, ton	.80	.92	.89	11,087	11,313	10,641	10,641
Hay, alfalfa, ton	2.16	2.27	2.23	46,887	69,092	64,870	66,400
Hay, clover and timothy,‡ ton	1.41	1.49	1.54	27,055	22,087	23,849	23,849
Hay, lespedeza, ton	1.04	1.16	1.28	5,768	4,852	5,303	5,434
Soybeans for beans, bu.	20.3	23.1	24.5	296,294	479,841	560,776	572,586
Pasture, %	**71	**80	**86	.....	.....	.....	.....

*Estimates for winter wheat, oats, barley, rye, wild hay, clover and timothy hay are not based on current indications, but are brought forward from previous reports. †Pounds. ‡Excludes sweet clover and lespedeza hay. **Condition Oct. 1

Corn Prospects Oct. 1 Indicate Record; Soybean Forecast Up

WASHINGTON — Prospects for a new record production of corn and further advances in the sorghum grain outlook were reported by the U.S. Department of Agriculture in its October crop report.

Corn prospects increased 3% during September to an estimated 3,686 million bushels, about 2% ahead of the previous record outturn of 3,605 million bushels in 1948. And the sorghum grain outlook Oct. 1 had reached 607 million bushels, 5% ahead of a month ago and 8% ahead of the record set last year.

These two record crops, along with a record barley output already secured and an above average oat crop, have pushed the feed grain tonnage expected from this year's crops to new heights which surpass the old record set a year ago by an impressive 8%. (See Table 1.)

The report also predicts a record smashing supply of soybeans. As of Oct. 1 the outlook was for 573 million bushels, almost one fifth more than the record production of a year ago.

Meanwhile, the flaxseed outturn appears nearly 7% larger than a month ago, pasture continued in good to excellent condition over most of the country and the national total hay crop was pushed by late cuttings to 120 million tons, only slightly under the 1957 record. Only cotton, with prospects down about 4% during September, showed a drop among the feed grains and oilseed crops.

Production Index

A further indication of the bumper crop of feed grains and oilseeds this year is the production index, which relates production to 1947-49 years considered as 100. The feed grain index is 131 this year and the oil crops index is 182. Oilseed tonnage prospects total about 18% over last year's record as September gains in soybeans, flaxseed and peanuts overbalanced the loss in cottonseed.

Adding to the over-all crop total is a production estimate for all wheat of 1,449 million bushels. This is slightly above the Sept. 1 estimate and the largest crop of record. The total is 53% above the 1957 production and 30% more than the 1947-56 average. Reflected in the change from a month ago are an increase of nearly 1 million bushels of durum and an increase of 2 million bushels of other spring wheat. The Aug. 1 estimate of winter wheat at 1,171 million bushels is carried forward.

Wheat yield per acre prospects are at a record level of 27 bu. This compares with 21.7 bu. in 1957 and an average of 17.7 bu.

A look at each of the feed grain and important oilseed crops shows the following:

CORN: The production outlook of 3,686 million bushels is up 3% from September, 8% ahead of last year and 17% above average. The indicated yield of 50.4 bu. per harvested acre is well above the previous record of 46.8 last year and nearly a third above the 38.8 bu. average for 1947-56. Of the corn production, 3,320 million bushels are expected to be harvested for grain compared with 3,060 million bushels last year and 2,830 million for the average.

In the corn belt, the indicated yield of 54.5 bu. per acre is above the previous record of 53.1 a year ago. About nine-tenths of the grain corn acreage was in the dent or mature stage by the end of September.

SOYBEANS: Estimated production of 573 million bushels is an increase of 2% over the Sept. 1 forecast and is almost one fifth above last year and nearly double the 10-year average. This huge production is a result of both record acreage and a record yield per acre. The U.S. indicated yield of 24.5 bu. per acre compares with 23.1 a year ago and with an average of only 20.3 bu. per acre. The USDA said the season to date "has been favorable beyond all expectations and in only a few places may the condition be described as poor or average."

SORGHUM GRAINS: A forecast of 607 million bushels is 5% ahead of Sept. 1, 8% above last year and 3½ times the average. The crop shows record yield prospects in all states with a forecast of 36.4 bu. per harvested acre—far above the 28.9 recorded last year and nearly double the 10-year average.

FLAXSEED: The flaxseed crop is estimated at 40 million bushels, an increase of 7% over the Sept. 1 forecast and 55% larger than the small crop of 1957. The yield per acre, indicated at 10.2 bu., is the highest since 1948, the second highest of record since 1906. It compares with 5.3 bu. in 1957 and an average of 9 bu.

Oilseed Meal Futures Show Irregular Trend

MEMPHIS — Oilseed meal futures closed irregular Oct. 15, on the Memphis Board of Trade, compared with Oct. 8.

Slow cash oil meal demand contributed to the downturn, along with strength in nearby soybean oil part of the period. An upswing in some cottonseed oil meal contracts resulted from a technical adjustment in prices, dealers reported.

Unrestricted soybean oil meal closed 90¢ to $3.10 ton lower than on Oct. 8, Eastern Trunk Line soybean oil meal $1.50 to $3 lower, bulk solvent cottonseed oil meal 75¢ lower to 25¢ higher, and sacked old process cottonseed oil meal unchanged to $2 higher.

Trading during the period amounted to 5,500 tons of unrestricted soybean oil meal and 800 tons of bulk solvent cottonseed oil meal.

Industry Change Predicted At Vermont Feed Meeting

By PAUL L. DITTEMORE
Feedstuffs Staff

BURLINGTON, VT.—The agricultural industry of the U.S. is undergoing a period of revolutionary changes that will have some profound effects on the formula feed manufacturing industry. That prediction was made by W. T. Diamond, secretary, American Feed Manufacturers Assn., Chicago, in an address delivered at the annual meeting of the Vermont Feed Dealers and Manufacturers Assn., Oct. 9, held on the campus of the University of Vermont.

Mr. Diamond told the Vermonters that "it behooves all in the industry to keep an alert eye on this mid-Twentieth Century revolution." He cited several developments in agricultural production that could affect feed manufacturers' and dealers' operations, including contract feeding, integration and decentralization of manufacturing services.

The retail feed outlets, he said, "could disappear if integration were extended to beef cattle, swine and dairy cattle feeding."

Mr. Diamond suggested that the feed manufacturers critically analyze the tonnage of their different formulas from a cost of production basis. He pointed out that the AFMA had found that about one-tenth of the total number of formulas account for about two-thirds of the total volume. He recommended discontinuance of the low-volume formulations.

He also advised the feed manufacturers to "go slow" on adopting bulk delivery services. He said that they should make sure they had sufficient tonnage in sight before committing themselves to the bulk transport system.

Feed production during 1958 is showing some variations over the U.S. as a whole, the AFMA secretary reported, adding that in the Corn Belt states production was about 16% ahead of the figures for 1957. Broiler and turkey feed production, he said, is up about 1% over the U.S. this year as compared with 1957 production.

He had some words of caution for both the feed manufacturer and the dealer with reference to the production and sale of medicated feeds. He said that "there is too much complacency, too much of a sense of security" among people in the feed industry with regard to the use of drugs and medicants in feed. He inferred that the U.S. Food & Drug Administration will become progressively more strict about the use of drugs in formula feeds. "And rather than it being a case of the Food & Drug Administration 'moving in' on the feed industry, it is a case of the feed industry moving in on the FDA," he added. He explained that the FDA has jurisdiction over any product which includes drugs in its formula.

Mr. Diamond emphasized his belief that the feed industry must realize and accept the responsibilities connected with the inclusion of drugs in formula feed. He said that drugs cannot ever replace sound management and sanitation practices.

Dr. R. M. Bethke, vice president, Ralston Purina Co., St. Louis, Mo., in a discussion of vitamin A requirements in dairy feeds, stressed the importance of high quality roughage. He said that milking cows on pasture, or getting medium to good quality hay, do not need vitamin A supplementation. He said that the carotene content of alfalfa hay is subject to deterioration and that the color of the hay cannot always be taken as an indicator of its vitamin A content.

Calves especially should be fed good quality hay, Dr. Bethke said, in order that their rumens may develop properly as well as for good nutrition. He recommended that heifer calves be given a full feed of quality roughage plus a grain ration.

Dr. Bethke reviewed the average vitamin A levels in different types of roughages and showed the feedmen how to figure the minimum feeding levels.

The opening session of the annual meeting was presided over by H. G. Savage, Ralston Purina Co., Bennington, Vt.

A report of research currently under way at the Vermont agricultural experiment station was presented by a panel of four staff members. Their presentation was prefaced by a short review of the agricultural research program, which was presented by Dr. T. W. Dowe, director of the station.

Dr. A. M. Smith reported on a study of the effect of the quality of roughage upon milk production. Hay from a cutting made June 1 and another lot of hay cut July 15 were being used in the test. Dr. Smith reported that the late cut hay was less palatable and less digestible and the cows in the test showed declines from 55% to 60% in milk production when fed the late cut hay.

D. C. Henderson, chairman of the poultry department, reported on the World Poultry Congress, held recently in Mexico City. He said that there was so much research to report that it would "take all day," so his remarks were limited to a general description of the event.

Dr. G. M. Wood, agronomist on the station staff, reported on work being done to determine whether dehydrated birdsfoot trefoil meal could be used as a replacement for alfalfa meal in poultry rations. Much of the soil in Vermont is suitable for production of birdsfoot trefoil and not for alfalfa, he said, adding that the trefoil is higher in protein and carotene content than alfalfa. The test was recently started, Dr. Wood said, and there are no results yet.

The meeting of the feed industry representatives was a "good time and place" for R. T. Wetherbee, chief chemist for the state's feed regulatory service, to announce that his office will begin to crack down on what he said was mislabeling of molasses for feed use.

He said that feed manufacturers are getting diluted blackstrap molasses "which is not blackstrap molasses but which comes under the definition of feeding cane molasses." He said that his office would insist upon proper labelling.

A discussion of the use of wet-milled corn byproducts in formula feed rations was presented by H. M. Mays, vice president of Corn Products Sales Co., New York, as the concluding talk on the morning program. Mr. Mays was introduced by R. F. McLeod, Wirthmore Feeds, Boston, Mass.

Mr. Mays told of the discovery of the nutritive value of corn gluten meal and of the development of other corn byproducts through a continuing program of research. He said that corn gluten meal is an important source of carotene in broiler rations. He also reviewed research work which led to the development of "Mazoferm," corn fermentation condensed solubles.

Leonard Mercia, secretary of the Vermont Poultry Council, read a statement from his organization's board of directors which urged the establishment of a grain terminal in Vermont. The council stated that such a terminal would lower the cost of poultry feeds which, in turn, would add to the development of the poultry industry in the state. The council's statement said that it would ask for the introduction of a bill in the next session of the state's legislature and it also urged the feed association to support the measure.

Mr. Savage, who has served as vice president of the feed association for the past two years, was elevated to the presidency at a business meeting which followed the program. He succeeds A. W. Barrows, Whiting, Vt. Glen Mix, E. W. Bailey Co., Montpelier, Vt., was elected vice president succeeding Mr. Savage.

A banquet and entertainment program during the evening brought the meeting to a close.

Chairman Appointed

NEW YORK — Dr. Daniel H. LeGear, president of Dr. LeGear, Inc., St. Louis, has been appointed veterinary industry finance chairman for the U.S. Committee for the United Nations, it was announced recently by Stanley M. Rumbough, Jr., national chairman. Dr. LeGear is a director of the Animal Health Institute and a member of the Young Presidents' Organization. (He is the author of an article appearing on page 54 of this issue of Feedstuffs.)

The U.S. Committee for the United Nations is a privately-supported citizens organization which has as its purpose "to disseminate facts about the United Nations and to promote the observance of United Nations Day in the U.S."

West Virginia Meeting Set

BLACKWATER FALLS, W. VA.—The annual convention of the West Virginia Feed Dealers Assn., to be held here Oct. 23-24, will feature speakers, business meetings and banquets.

Highlights of the affair include:

- "Future of Feed Distribution on the Dealer Level in Grain Deficit Areas," a talk by Robert F. McLeod, president of Wirthmore Feeds, Waltham, Mass.
- "Bulk Feed Storage and Handling," a talk by Howard Waldron, Sprout, Waldron & Co., Muncy, Pa.
- "State Feed Purchasing Procedures," a talk by Randel Bumgardner, director of purchases for the state of West Virginia.
- "Antibiotics and Tranquilizers in Feeds," a talk by Dr. James J. Drain, American Cyanamid Co., New York.
- "Injectable Iron and Anemia in Suckling Pigs," a talk by Dr. G. C. Anderson, West Virginia University.
- "The Potentiating Effect of Terephthalic Acid on Antibiotics in Disease Control," a talk by Dr. N. O. Olson, West Virginia University.
- "Restricted Nutrient Intake and Pullet Development," a talk by Dr. Homer Patrick, West Virginia University.
- "Tax Equality for Independent Feed Dealers with Cooperatives and other Non-Profit Organizations," a talk by David M. Molthrop, Committee on State Sovereignty, Washington.

Austin W. Carpenter, executive director of the Eastern Federation of Feed Merchants, Sherburne, N.Y., will give the banquet address. He will speak on "The Big Challenge for Feedmen."

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Midwest Meeting Planned for Feed Men, Veterinarians

KANSAS CITY—The first area-wide Midwest Veterinarian-Nutrition Conference, jointly sponsored by the Midwest Feed Manufacturers Assn. and the state veterinary medical associations of Iowa, Kansas, Missouri and Nebraska, will be presented Dec. 8-9 at the President Hotel in Kansas City. All feed nutritionists and veterinarians are invited to attend.

Problems in the four major areas of animal nutrition—swine, poultry, ruminants and small animals—will be covered by specialists in feed formulation and veterinary medicine, drawn from colleges and industry.

Dr. R. E. Rebrassier, president of the American Veterinary Medical Assn., will address the banquet meeting the evening of Dec. 8.

The entire program is planned to provide the latest information on animal nutrition, and to encourage and cement mutual understanding between the feed man and the veterinarian.

The morning of Dec. 8, as outlined in the preliminary program, will be devoted to swine production, with the general topics being: Control of internal parasites; the role of minerals in swine disease prevention; balancing swine rations; new concepts of swine production; deficiency diseases in swine, and growth stimulants.

The poultry session during the afternoon of Dec. 8 will be conducted under the following topics: The role of nutrition and management in growth and production; solving broiler production problems; meeting nutritional needs of turkeys as related to disease control; compatibility of water medication with feed medication, and what poultry service work can mean to the veterinarian.

General topics to be discussed at the session on ruminants the morning of Dec. 9 include: The latest thinking on bloat control; additives in ruminant feeds; combatting ruminant stress problems before and after reaching the feed lot; working with veterinarians in the field, and working with feed people.

The small animal program the afternoon of Dec. 9 will be presented under the topics: Proper nutrition of pets as a preventive of disease; nutritional diseases in the pet as seen by the small animal practitioner, and feeding the unusual pet.

Advance registration may be sent to Midwest Feed Manufacturers Assn., 20 W. 9th St. Bldg., Kansas City 5, Mo.

Douglas L. Mann

MANAGER APPOINTMENT—Douglas L. Mann has been appointed assistant general manager at Western Condensing Co., division of Foremost Dairies, Kenneth W. Ward, general manager and president, announced. Mr. Mann will continue in his present post as general sales manager for consumer and commodity products sold to the food, pharmaceutical and farm industries, in addition to his new responsibilities. Prior to joining Western Condensing in 1954, Mr. Mann held executive positions with Standard Brands and Congoleum-Nairn, Inc.

TEXAS

(Continued from page 1)

Members of the TBA voted in Center, Texas, Sept. 20 to have their directors affiliate the TBA with the Amalgamated Meat Cutters & Butchers Workmen, AFL-CIO. Membership of the association was said to be about 200.

About 100 votes were counted at the meeting and nearly half of those were said to be proxy votes. J. B. McMillan, Garrison, Texas, is president of the TBA and has been leading the movement. The TBA is not to be confused with the Texas Broiler Council which is larger and more conservative.

Former Sharecroppers

Texas feed men who discount the union movement explain that the growers interested in joining a union for the most part are former sharecroppers who have since 1950 been growing broilers under a contract arrangement with feed companies in which they were guaranteed a profit.

FEED-VET MEETING—Feed industry representatives and veterinarians are shown at a session for planning the first area-wide Midwest Veterinarian-Nutrition Conference Dec. 8-9 in Kansas City. Veterinarians (seated left to right) are: Dr. James C. McCrea, Platte City, Mo.; Dr. James K. Farrell, president of the Missouri Veterinary Medical Assn., Boonville; Dr. Chase Wilson, chairman of Consumers Cooperative Assn., Kansas City; Dr. F. B. Young, secretary of the Iowa Veterinary Medical Assn., Waukee; Dr. Merle Henriksen, president of the Kansas Veterinary Medical Assn., Emporia, and Dr. James H. Magilton, representing the Nebraska Veterinary Medical Assn., David City. Feed industry representatives (standing left to right) are: Lloyd Larson, executive vice president of the Midwest Feed Manufacturers Assn., Kansas City; Dr. Leroy Hanson, Foxbilt, Inc., Des Moines; Maxwell Cooley, Hoffman-Taff, Inc., Springfield, Mo.; Dr. W. E. Poley, Zip Feed Mills, Inc., Sioux Falls, S.D.; Dr. John Van Zandt, Staley Milling Co., Kansas City, and Maurice Wells, Waterloo (Iowa) Mills Co.

OIL DONATION PLAN IS DROPPED

WASHINGTON — The proposed government oil donation program is dead. At a White House meeting including top U.S. Department of Agriculture staff men, it was decided on a budgetary basis that it would be unwise at this time to disburse the additional cash necessary to pay for the cost of processing soybeans into consumer end products such as oil, shortening and margarine. While there is some mild hope that at a later date there might be a revival of this program, best opinion in Washington is that an oil donation program is a dead issue. The plan would have involved probably between 25 and 50 million bushels of soybeans being processed into edible oils for domestic and foreign relief programs this year. It was seen by some observers as a stabilizing influence on the soybean market.

With broiler growing now so competitive and feed manufacturers being forced to get out of broiler financing, a number of these growers no longer have the guaranteed income that they had. Their equipment is run down, they are not good managers and they can now find no one to finance their operations. The banks never would take them on as good risks. Feed companies did until they no longer could afford to.

"These growers would be willing to sign up with a union or most anyone if they were guaranteed a profit," one feed manufacturer said.

A feed dealer who attended the meeting at Center reported to the manufacturer he works with that there was not a grower at the meeting who, on the basis of his reputations as a grower, he would want to do business with.

"These are not the people who are going to pay union dues, rather, they are looking for someone to advance them $5 for groceries," one man said.

Reasons Against Unionizing

Contract broiler growers in the east Texas area cite a number of reasons why unionizing broiler growers is not likely to succeed.

First, the basic interests of unions and farmers are opposite—the union man wants to see lower food prices. The farmer wants higher prices for his products.

Second, contract broiler growers, because of nationwide competition, have to produce broilers as cheaply as they can if they want to stay in business. If contract grower demands do not permit the contractor to compete, he will either employ his own growers completely or go out of business. A number of contract growers have said they would not enter into a contract with a unionized grower who might decide in the middle of raising a flock of chicks to go out on strike. Union efforts will merely accelerate the trend toward vertical integration.

Third, the union would have difficulty in collecting dues. There is no easy way to get the dues out of a grower's income as there is with a factory worker on a payroll.

Fourth, the unionization of growers in one area of the country would merely drive that area out of the broiler business since it could not meet competition of other sections. Already this union talk is said to have hurt the east Texas broiler industry.

Union organizers have made statements that they can put pressure on feed men if they resist through other unions. This kind of pressure is inclined to be discounted by feed men since many of them are not operating union plants. There are also many processing plants that are not unionized.

A local organizational meeting of the TBA was held in Garrison, Texas, Oct. 11 with about 75 growers present.

Sam Twedell, Dallas, vice president of the union for southwestern states, was present, and he announced that an office will be opened in east Texas and organizers will be hired. Broiler growers have been selected as organizers to contact other growers and sign them up in the TBA. Starting Nov. 1, weekly meetings will be held in several localities.

It remains to be seen what the final outcome of the effort to unionize broiler growers will be, but at the moment, feed industry people view it only as an insignificant movement.

Fred G. Dehning

FORMS OWN FIRM—Fred G. Dehning, Minneapolis, veteran of more than 20 years in the feed brokerage business, is going into business in Minneapolis for himself under the name of the Fred G. Dehning Co. He began his brokerage experience with Cereal Byproducts Co. in 1935 and continued with the firm—except for service in the U.S. Navy during World War II—until September, 1958. He had been in the Minneapolis office the entire period except for service in Omaha, Neb., office in 1941-42. Mr. Dehning has been active in the Northwest Feed Manufacturers Assn. His office will be at 5331 Emerson Ave. So., Minneapolis 19, Minn.

Delmarva Broiler Price Falls to Average of 15.8c

SALISBURY, MD. — The nation's hatcheries increased their egg set last week in the face of lower broiler prices.

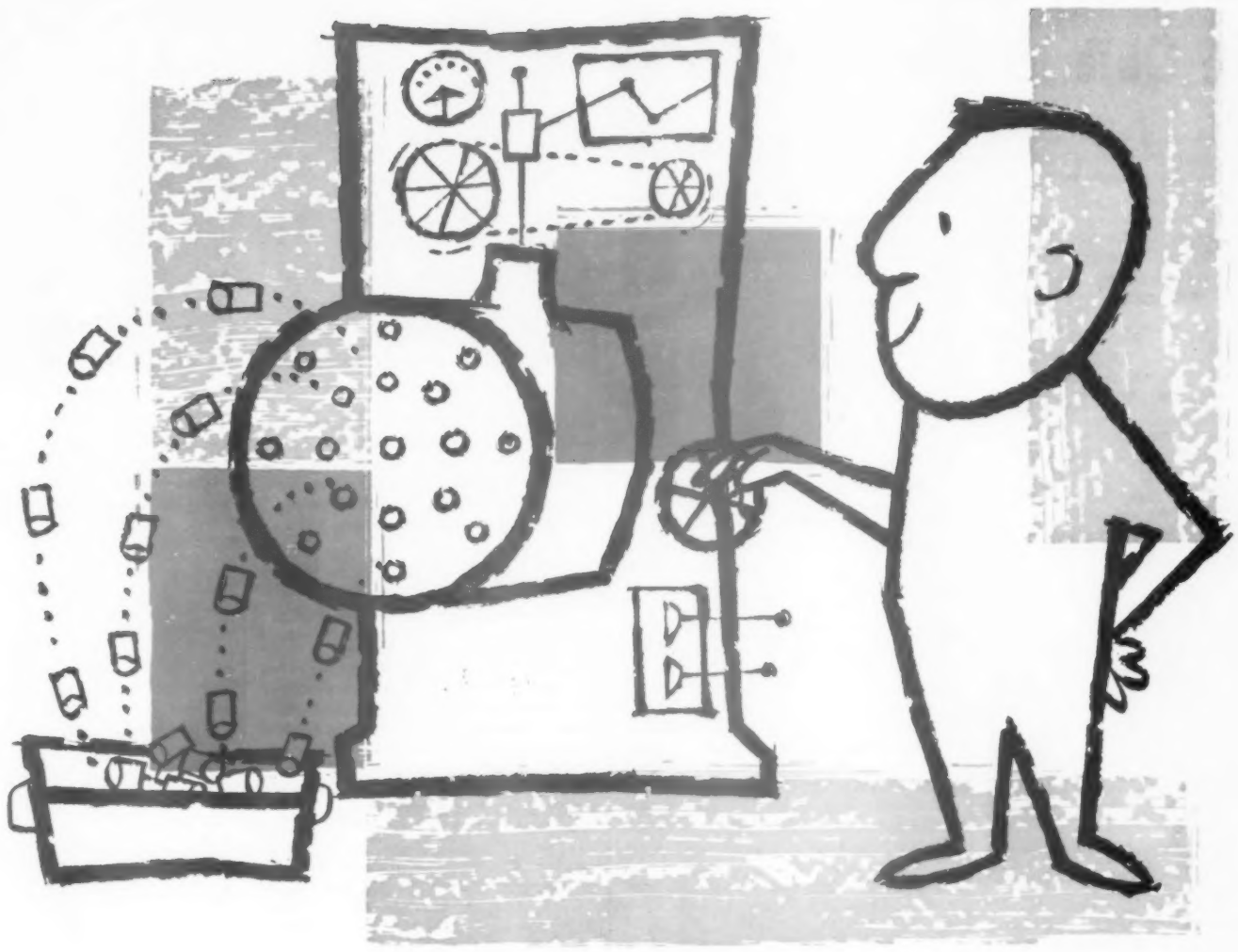
The price paid in Delmarva for broilers on the farm last week averaged 15.8¢ lb., compared to 16.4¢ the week before.

Hatcheries set 37,300,000 eggs during the week of Oct. 11. This was 4% more than the previous week and 15% above the corresponding week a year ago. Increases in the number of eggs set from the previous week were reported in all but four of the 22 major broiler producing states.

Broiler growers in the 22 states placed 26,574,000 chicks. This was almost the same as the previous week but 10% above the corresponding week a year ago. Increases were reported in 14 states and decreases in eight states, compared to the previous week. Largest increases from the previous week occurred in Texas, Alabama, and Virginia. Largest declines were in Pennsylvania, West Virginia, and California.

ELECTED TO BOARD

TOLEDO, OHIO—Donald M. Moebius, General Mills, Inc., Rossford, was elected to membership in the Toledo Board of Trade recently. He is soybean purchaser for the oilseed division of the firm.



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This is just another example of the care Morton takes to make Morton Mixing Salts the finest obtainable, at *no extra cost to the feed mixer.* This same attention to quality from every standpoint goes into Morton Iodized Mixing Salt and Morton extra-free-flowing Special Mixing Salt. All three types are available at short notice through Morton's nation-wide distribution system.

Morton Trace-Mineralized Mixing Salt contains: **Salt, Manganoferro Phosphate, Ferrous Carbonate, Copper Oxide, Cobalt Oxide, Cuprous Iodide and Zinc Oxide.**

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New Era of Operation

Uncle Johnny Mills Overhauls Plant; Observes 60th Birthday

Uncle Johnny Mills in Houston, Texas, will mark its 60th anniversary Oct. 19-24 with an open house and special features.

The week-long observance of the past coincides with the launching of a new era of operation for the firm —it recently completed a change-over to all mechanized, push-button equipment.

Lorne F. Van Stone, president of the company, the eighth oldest feed mill in the nation, describes the mill as a "science age example of push-button efficiency."

The mill operates as two divisions. One department manufactures the Uncle Johnny brand name processed feeds (Egaday, Porkaday, Milkaday, Feedaday, Protecto and Bark Dog Food). The other department is known as the Vit-I-Mix division, where the Uncle Johnny premixes are made under electronically-controlled methods. All feeds in both divisions are manufactured under "Vitabilt" quality-control standards adopted in 1938.

Uncle Johnny Mills began in September, 1957, to remodel and convert to an electronic panel board, push-button operation.

BULK UNLOADING — Part of the new equipment at Uncle Johnny Mills in Houston, Texas, is a Pneu-Vac unit, being used in this picture to unload bulk cottonseed meal from a freight car.

Unloading By Air

A Sprout-Waldron 75 h.p. Pneu-Vac system has been installed to unload bulk feed ingredients in either carload or truckload. The bulk ingredient storage capacity is 2.5 million pounds. The mill capacity with new improvements and remodeling is 300 tons per eight-hour day. Company officials estimate that this installation effected a labor savings of approximately $96,000 a year.

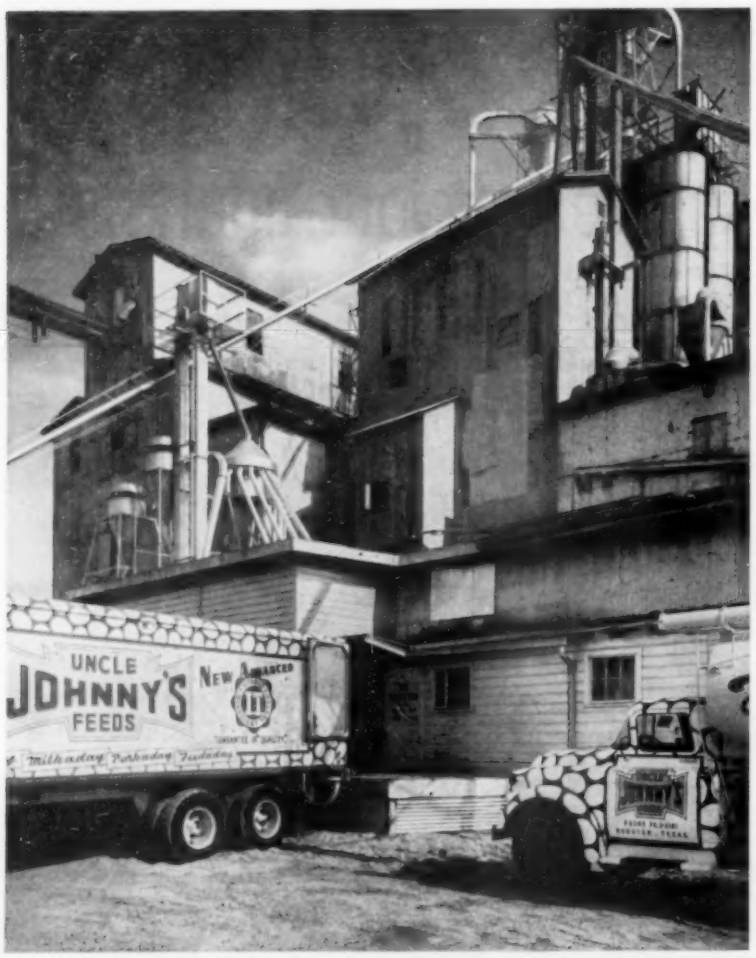
Hayes & Stolz Industrial Manufacturing Co., Ft. Worth, Texas, acted as engineering advisors and consultants, with Simmons & Sons, Azle, Texas, millwrights and elevator construction specialists, making the installations.

Items of new equipment include:

1. I&C bagging scale in the poultry feed department, installed with new sewing equipment (Union 80600 Special) with Vee-Trof conveyors.

2. Richardson Molasses feed scale and bagger, installed with new Union 80600 Special sewing equipment with conveyors.

3. Richardson automatic scale (G38), installed with new sewing equipment with conveyors, to package premixes in the new Vit-I-Mix division. The equipment can also be used for other sacking when production necessitates.



PREMIX DEPARTMENT—Premixes are manufactured in a separate department, known as the Vit-I-Mix department, at Uncle Johnny Mills in Houston, Texas. The machinery in this department is on the roof, at floor level and 14 ft. underground.

Lorne F. Van Stone

William R. Archer

BOARD CHAIRMAN—William R. Archer is chairman of the board of Uncle Johnny Mills, Houston, Texas. He and his associates assumed ownership of the firm, now marking its 60th anniversary, in 1938 when it was known as the South Texas Feed Co. President of the company, which recently completed a remodeling of its Houston, Texas, plant, is Loren F. Van Stone. He has been with the firm since 1938.

4. Two Edtbaur Duplex scales for packing 2, 5, 10, 25 and 50-lb. sizes in the new Bark Dog Food department.

5. Electronically-controlled equipment in the premix processing department; complete in every detail for precision proportioning and mixing of minute quantities of critical and needed materials. Mixer capacity is 1000 lb. This new installation is housed in a new building on the north side of mill proper.

6. Jacobson hammer mill (model 78) which grinds 35,000 lb. of grain per hour, giving the mills a grinding capacity of 60,000 lb. per hour.

7. Allis-Chalmers oat crimper (10x 42 in.) with steamer, with a capacity of 10-20,000 lb. per hour.

8. Allis-Chalmers corn cracker (10 x42 in.) with screening equipment, with a capacity of 30,000 lb. per hour.

9. Hayes & Stolz Hi-Speed blenders installed under two 2-ton Hayes & Stolz horizontal mixers.

Lower Production Costs

"The methodical change has brought about substantial reductions in production costs, increased capacity and efficiency of the plant," Mr. Van Stone said. "Not only has Uncle Johnny Mills gone through a complete overhaul as to equipment, operational methods and adaptation to the modern era of automation, but officials have also made important changes and improvements on departmentalizing, work scheduling, supervision of workers and record keeping.

"The best research sources and standards were studied for more advantageous application, with the result that the operation of laborers, office and laboratory staffs and field representatives have been streamlined, even as the productivity of the mills increased."

Mr. Van Stone pointed out that bulk feeding and its importance to animal agriculture is emphasized in the new plant equipment and organization. All incoming shipments of ingredients, either in truck or car, are unloaded by air. One of the unique features for grain handling necessitates that all grains go through cleaners and aspirators before going into bins or storage tanks.

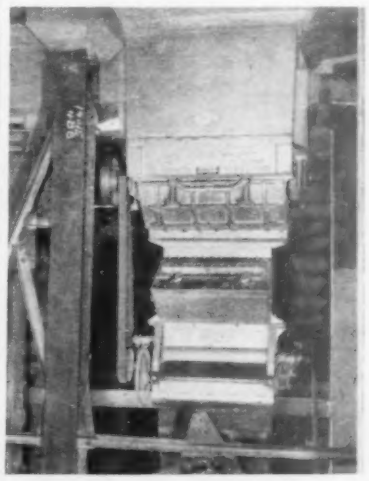
Pellets and cubes are milled in 100-h.p., heavy-duty California pellet mills, which have attachments for making granules. After sacked feeds are packaged and weighed, automatic conveyors pick up the sacks and carry them to cars, or to the platform for delivery to trucks, or floor for inventory.

Feeding Programs

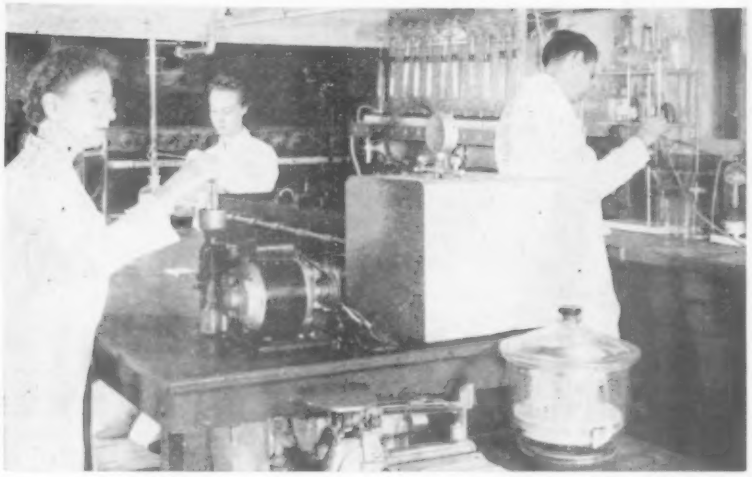
Over the years, Uncle Johnny Mills has inaugurated programs that have been passed on to feeders through promotional sales, advertising and public relations efforts, which are implemented in the agricultural and business channels of the new "agri-business" concept, as well as through 200 Uncle Johnny franchised feed dealers in Texas and Louisiana.

Among the 1958 programs are the current "multiple farrowing" program of pig-nursery to "hog heaven" marketing feeding operations; the

CONVEYOR—After sacked feeds are packaged and weighed at the Uncle Johnny Mills in Houston, Texas, automatic conveyors pick up the sacks and carry them to cars, or to platforms for delivery to trucks, or to the floor for inventory.



HAMMER MILL—This 100 h.p. Jacobson hammer mill used in the manufacture of Uncle Johnny brand name processed feeds grinds 35,000 lb. of grain per hour. The Uncle Johnny Mills plant in Houston, Texas, also has 100 h.p. pellet and cube mills and granulating equipment.



FEED TESTING—At this feed testing laboratory at Uncle Johnny Mills in Houston, Texas, analyses are run and feed ingredients are checked. Only those measuring up to the "Vitabilt" quality-control standards set by the company in 1938 are used in feeds.

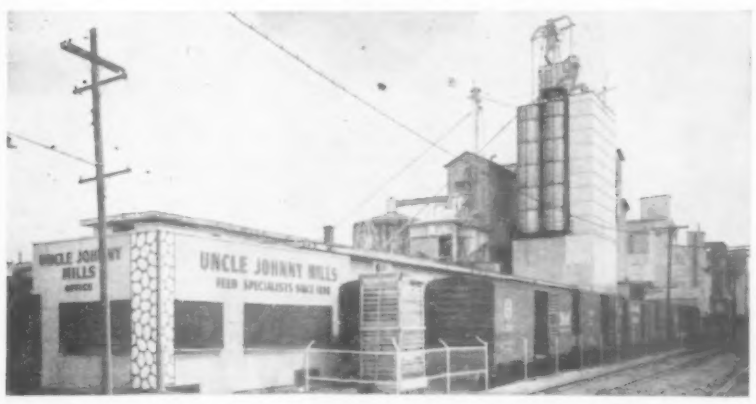
"henstead," a homestead for layers and a complete, portable colony cage laying house with feeders and waterers, and the incorporation of trithiadol in starter, grower and broiler feeds. (Trithiadol is a coccidiosis preventive.)

As the company observes its 60th year of operation, officials look back on many "firsts" in the field of animal nutrition and service to feeders. Among these they list the testing of antibiotics in the mills' trade area, the use of kelp and fish meal in feeds, the use of manganese in feed to control perosis and improve the quality of eggshells, the development of the "Vita Verde" program providing a continuous supply of freshly dehydrated alfalfa, and the testing in its area of stilbestrol in cattle feeds.

In the field of packaging, officials say the company was among the first in the nation to use 50-lb. paper bags and the first in Texas and Louisiana to print complete feeding instructions on such feed bags.

Company History

Founded in 1898 by the late Charles Shearn and J. V. Neuhaus as the South Texas Grain Co. in Houston, the firm was incorporated in 1899 and has grown steadily through economic ups and downs and a disastrous fire suffered in its early years. In 1936, the Neuhaus brothers bought the Shearn interest and changed the name to the South Texas Feed Co. W. R. Archer, chairman of the board, and Mr. Van Stone joined the company at that time. J. W. Vinson had already been connected with the firm for some time. In 1938, Mr. Archer, Mr. Van Stone and associates bought the Neuhaus interests, and in 1943 changed the name to Uncle Johnny Mills. Besides Mr. Archer and Mr. Van Stone, officers of the firm include: J. W. Vinson, vice president; Paul J. Sanders, vice president and superintendent of production; W. R. Archer, Jr., secretary-treasurer; Dick Taylor, director of research; Henry W. Hasse, director of sales; R. A. Reichardt, assistant sales manager; H. C. Newman, traffic manager; Lou Loftiss, manager of the Vit-I-Mix division, and Don L. Rockwell, office manager.



RAILROAD FACILITIES—This view of the Uncle Johnny Mills plant in Houston, Texas, shows a section of the railroad facilities. A large parking and loading area on the opposite side of the plant accommodates the fleet of delivery trucks for delivery of sacked and bulk feeds.

BULK DELIVERY—As a part of the face-lifting at Uncle Johnny Mills is an expanded bulk delivery service, as well as handling ingredients and feeds in bulk at the plant. Shown is one of the firm's bulk trucks.

Feed Mill Turns Out Two Million Tons in 35 Years of Production

CONCORD, N.H. — A ceremony took place recently at the feed mill of the Merrimack Farmers Exchange, Inc., Bow, when the plant turned out the bag of feed which marked the manufacturing of two million tons of livestock and poultry feed since it was established about 35 years ago.

Loren A. O'Brien, general manager of the exchange; Charles W. Fletcher, sales manager, and other officials saluted the "two-million-ton" bag, which was photographed and discussed enthusiastically at the feed plant.

Old-timers recalled that the exchange, which also operates more than a score of retail feed stores throughout New Hampshire, started manufacturing feeds back in 1922, mixing the first formula with a hand shovel. The late George M. Putnam, Concord, a leader in the development of the exchange and the New Hampshire Farm Bureau, was with the firm at that time.

The following year the first Merrimack feed plant was completed in Concord, on the site of the present main office of the Exchange. Some years later, the Exchange purchased the feed mill of the Rockingham Farmers Exchange in Epping, and the plant there was brought into peak production.

Still the Concord and Epping mills could not keep up with the demand for Merrimack feeds, and in 1940 the Bow plant, said at the time to have been the most modern feed mill in the East, was constructed. It was officially opened in 1941, with Ralph E. Parmenter as general manager.

Besides the mill and huge warehouse, Merrimack Farmers Exchange has six bulk delivery trucks which supply its retail store chain with nearly 50 kinds of feeds, as well as 36 regular trucks making 240,000 farm deliveries annually.

George A. Bassett of Fremont is president of the Exchange.

Illinois Sheep Day Program Announced

URBANA, ILL. — Sheep feeding, fertility, wool and marketing are among the subjects to be discussed at the Illinois Sheep Day to be held Oct. 31 at the stock pavilion on the University campus.

University of Illinois staff members will be joined by sheep raisers, out-of-state educators and others in presenting the program.

Activities open at 9 a.m. at the sheep farm where demonstrations and exhibits of drenching, blocking, trimming and rumen analyses will be given. The formal program gets under way at 10:15 a.m. at the pavilion.

Three discussions covering feeding will be given during the morning session. E. W. Dayton will discuss the latest feeding report on higher-oil corn, Dr. E. E. Hatfield will discuss corn fields and lamb feeding and Nelson Gay will talk on the effect of pasture on fertility of ewes.

Also scheduled for the morning session are discussions of the sheep program at the University of Illinois, observations on "spot pooling" of wool, a discussion entitled "Pastures and Parasites," and another entitled "Carcasses Consumers Like, and Wool Production."

The afternoon session includes a talk on the Illinois sheep outlook, a discussion of trends in Australian sheep production by R. H. Weston, Sydney, Australia, and a summary of the Illinois sheep production project.

The group will then split into two sections. One will be a lamb feeders session, and the other will be a farm flock session handled by G. R. Carlisle.

Revised Arkansas Feed Regulations In Effect Jan. 1

LITTLE ROCK, ARK.—New Arkansas feed regulations adopted in January, 1958, will be enforced starting Jan. 1, 1959, according to the Arkansas State Plant Board.

Henry DeSalvo, head of the feed, fertilizer and pesticide division of the board spoke on the new regulations at the recent Formula Feed Conference at the University of Arkansas, referring to the regulations as "modernized regulations that can be enforced." The Arkansas feed law has not been changed.

The new regulations are as follows:

REGULATION NO. 1
"Custom-Mixed Feeds"

1. The term "Custom-Mixed" feeds means any mixture of concentrated feedstuffs and/or feed materials, each batch of which is mixed according to specific instructions of the final purchaser. The final purchaser may supply his own grains or other materials to be used in the custom mix.

2. Any person or firm engaging in a custom-mixing operation shall register as such with the Plant Board, on forms furnished by the Plant Board, and obtain forms for reporting the tonnage each quarter. Such reports shall be notarized and state the tonnage of all concentrated feedingstuffs and/or feed materials used in custom-mixed feeds, except those ingredients supplied by the final purchaser, and be accompanied by an inspection fee of 10¢ per ton.

NOTE: For inspection fee purposes, ingredients obtained by the final purchaser from the mill doing the custom mixing will not be considered as being supplied by such final purchaser.

3. Each batch of custom-mixed feed shall be labeled by invoice, to show the following:
(a) Name and address of the mixer,
(b) Name and address of the purchaser,
(c) Date of sale,
(d) Brand name and number of pounds of each registered commercial feed used in the mixture and the name and number of pounds of each other feed ingredient added.

This invoice shall be executed in duplicate and a copy shall be given to the final purchaser at the time of delivery. The remaining copy shall be retained by the custom-mixer for inspection purposes.

4. Each bag of custom-mixed feed left in custom-mixer's stock, shall be identified by the name and address of the final purchaser for whom such was prepared.

5. Custom-mixed feeds may not be offered or exposed for sale to the general public. Feeds so offered or exposed for sale must meet all requirements of the Arkansas Feed Law and Regulations.

REGULATION NO. 2
"Feed Analysis"

1. An "official sample" shall mean one that is taken by an inspector of the Plant Board from unopened, properly labeled packages, or properly labeled bulk shipments.

2. The Plant Board shall make analyses only on official samples, and same shall be reported to all parties concerned.

3. Persons or firms desiring an analysis on feeds they suspect to be mislabeled, should immediately notify the Plant Board in order that an inspector may procure an official sample.

REGULATION NO. 3
"Labeling"

1. It will be unlawful to sell or offer for sale in the State of Arkansas any feed, the ingredients of which are hulls, oat clips, mixed screenings, chaff and/or dust, or similar materials, unless that feed bears upon the registration and label a statement of the percentage of each of these constituents.

NOTE: "Similar materials" would include rice hulls, peanut hulls, etc., or any other material which has little or no feeding value.

2. Rice hulls, peanut hulls, and similar high fiber materials, except cottonseed hull and meal mixtures, shall be used as ingredients only in feeds containing molasses. Rice hulls shall be ground fine enough to pass through a 16 mesh sieve.

3. Each ingredient must be specifically named in order that the purchaser may be completely informed of the components of the mixture. Each and every ingredient must be designated on the label in accordance with the official and/or tentative definitions of the Association of American Feed Control Officials if such have been adopted; otherwise, it must be stated in common English terms.

4. When a percentage figure is used in the ingredient statement, it shall be on the weight basis of that ingredient in the finished feed. The ingredients of mixed feeds should be listed on the label substantially in the order of their predominance by weight.

REGULATION NO. 4
"Tonnage Reports and Inspection Fees"

1. Each manufacturer, jobber or agent shall forward a notarized tonnage report to the Plant Board, on forms furnished by the Plant Board, not later than thirty days after the end of each quarter. Such report shall include the tonnages of all feeds distributed for sale or consumption in Arkansas, and be accompanied by an inspection fee of 10¢ per ton. Quarters shall end Sept. 30, Dec. 31, March 31 and June 30 of each year. Reports sent later than thirty days after the end of a quarter, as evidenced by the postmark date, shall be accompanied by a doubled inspection fee of 20¢ per ton.

NOTE: A notarized report is required each quarter even though no inspection fees are due, or no feeds are sold.

2. Any person or dealer in Arkansas

(Turn to **REGULATIONS**, page 16)

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Crude Fiber . . .	Not more than	9.0%
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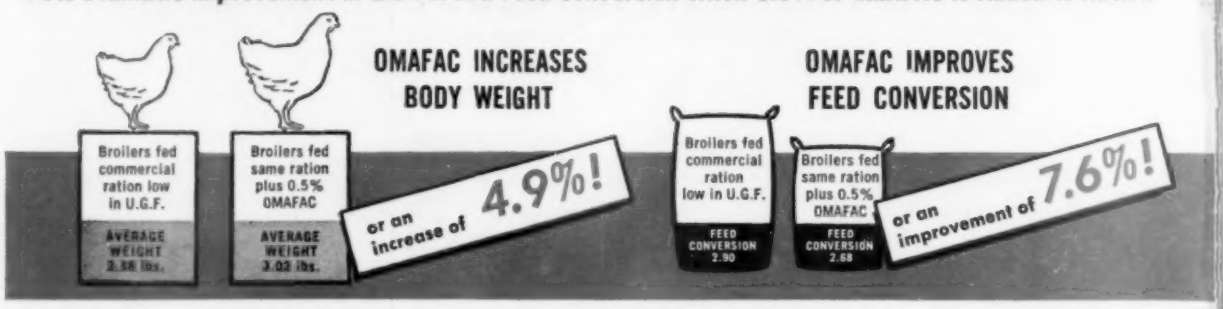
OMAFAC INCREASES BODY WEIGHT
Broilers fed commercial ration low in U.G.F.
AVERAGE WEIGHT 2.88 lbs.
Broilers fed same ration plus 0.5% OMAFAC
AVERAGE WEIGHT 3.03 lbs.
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• **OMAFAC** gives you a more concentrated and economical source of U.G.F. than fish solubles, dried whey, fish meal, distiller's solubles, dried yeast, etc.

• **OMAFAC** increases the antibiotic content of your ration by 15 gm. per ton (Streptomycin) at the 0.5% level.

**Data obtained by German, Texas Farm Products Co., Nacogdoches, Texas.

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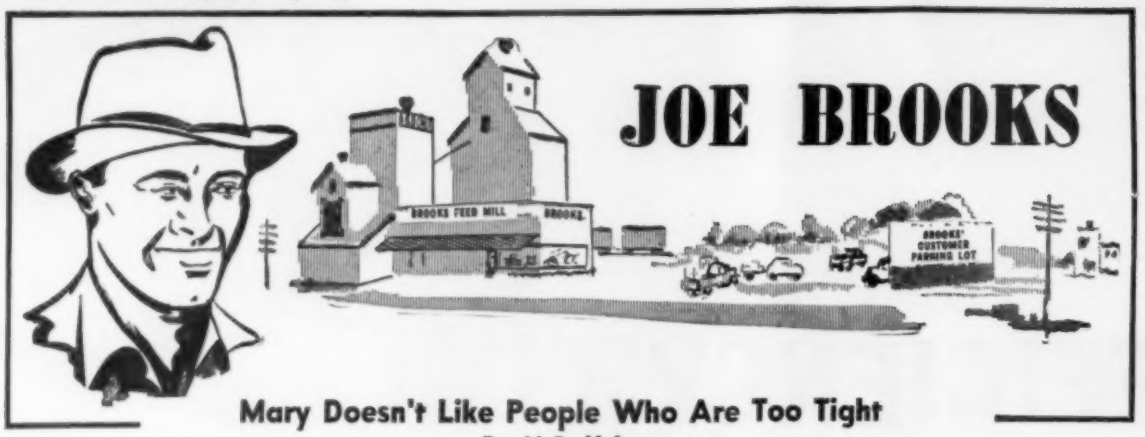

Mary Doesn't Like People Who Are Too Tight

By Al P. Nelson

When townspeople spotted Joe Brooks walking home nights with a full briefcase — as sometimes happened two or three nights a week — they often said, "Poor Joe Brooks. Won't he learn that a business man shouldn't haul his business home nights with him? It's not good for his health, nor family life. Too much work is not good for anyone."

But on such occasions as Joe brought his brown briefcase home, he was not worrying about untended business matters. He was just bringing home some extra curricular reading.

Whereas some feed dealers, perhaps younger ones, would sit at home reading—after they got bored with television—such books as "God's Little Acre," "Peyton Place," "Marjorie Morningstar" and other novels, Joe liked non fiction.

Non fiction, that is, in the trade journal field. Joe didn't carry lurid fiction tales in his briefcase. He brought home copies of business magazines like Feedstuffs.

"I ask you," Joe often said to Mary, "do you honestly like to sit in the living room and watch one darn western after another hour after hour?"

"I hate it," Mary said frankly, "but the twins love it."

"Okay, but I don't," Joe said. "So I like to go upstairs and sit in the quiet of the bedroom. I like to read the trade magazines from cover to cover. I catch up on the news of the conventions that I miss. I read about new products so I can sell them more intelligently. I read the ads and learn about new machinery. I read how other dealers are working harder than I am to make more profit, and I resolve to do likewise. Mary, I enjoy going through those trade journals. And I mark, clip and file information I can use. That's not work for me. That's fun."

Mary winced. "Well, don't shout at me, Joe. You don't have to defend yourself to me. I know you like to read those magazines, and it's awfully busy at the office most times and you don't get the chance to look the magazines over like you want to."

"That's right," Joe said. "And I notice you like to browse through them, too."

"I do, Joe. I think that's why I can come up with ideas you can use now and then. But there's one fellow who gets my dander up."

"Which one is that?"

"That's Oscar Schoenfeld in that serial story 'Oscar and Pat' in Croplife magazine. How anybody could be so tight I don't know."

Joe smiled. "Oh, I read that, too. Poor Oscar, everyone is always picking on him because he's frugal."

"Frugal! He's worse than that. Look how tight he is with his wife, Minnie. Why, the other day when they opened Oscar's grandmother's trunk in the attic and found a pair of button shoes in it, he actually made Minnie wear them, just so he wouldn't have to buy her a new pair."

"Well, but—"

"And he won't let her turn on the radio or the ten inch television set except for a few minutes every night! And he has the nerve to go around and turn out the lights if she steps out of a room for a minute. Such a man—honestly—" Mary broke off disgustedly.

"But he has some good ideas," Joe said. "He says some people spend too much money—especially his partner, Pat. He says people should cut costs. He says they should save more, and that money is always in style, and—"

Mary bristled. "Look here, Joe, are you insinuating that I spend too much money?"

"I didn't say that. I just said—"

"Well, it sounded like that. If you knew how I scrimp and save just to make that small household budget you give me last, you wouldn't say such a thing."

"Small budget?" Joe echoed. "Why, I think that's a pretty good budget. You mean to tell me that I'm not giving you enough money to run the house properly?"

"Well, it isn't deluxe by any means. Sometimes I'm just like Oscar's wife, Minnie, I have to walk seven or eight blocks just to buy cheap meat to make my food budget reach. And my feet ache so."

Joe's face was turning a little red. "I notice you don't complain about having to walk eight blocks to the Leader Department Store when they have a new dress or hat you want."

Mary put her hands on her hips. "Why you Oscar you! I resent that remark. So now you're begrudging me a new hat and dress once in a blue moon. That's the limit."

"Once in a blue moon! That blue moon comes around quite regularly judging from the department store bill I spot every month about the 10th."

"Oooh!" moaned Mary angrily.

The scared face of Joe, Jr., peeked around the corner. "Gosh, do you people have to yell so loud? We can't even hear the western downstairs. What are you fighting about?"

Joe relaxed. "Well, Joe, a chap by

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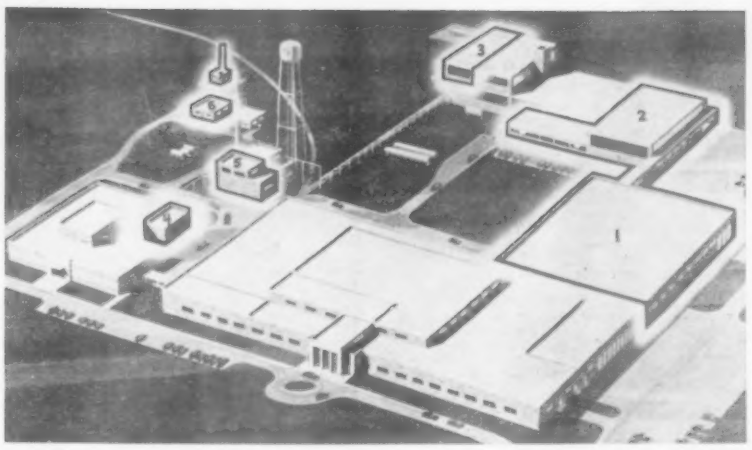


LABORATORY EXPANSION—This drawing shows planned additions and new facilities that have been added within the past year to the manufacturing site of Dr. Salsbury's Laboratories, Charles City, Iowa. Parts of the facilities designated by the numbers are: Planned 40,000-sq. ft. addition to the pharmaceutical building (1); planned additions to the chemical production plant (2 and 3); new quality control laboratory for biologics testing (4); planned addition to the boiler plant (5); new isolation house (one of two) for chickens on special test (6), and new incinerator (7). Dr. John G. Salsbury, vice president and general manager of the firm, said the new expansion will double the company's capacity to produce feed additive drugs, and that construction is slated for completion in mid-1959. The Austin Co., Cleveland, has been retained to design and construct the addition to the pharmaceutical building and a 15,000-sq. ft. expansion of the chemical plant.

the name of Oscar who likes to save money, maybe more than the average guy does, got us started. I'm sorry, Mary."

Mary softened, flung herself into Joe's arms and cried. "I'm sorry, too, Joe. I am a good wife."

"Sure you are," Joe said reassuringly, patting her on the back. "Let's make Oscar a taboo conversation piece around here. We'll put him in the same category as your mother, in that respect. Okay?"

"Okay," Mary said in a muffled voice. "Kiss me, and tell me you love me."

Joe, Jr., went back downstairs. "It's all over," he announced to his scared brother Jimmie. "They had a scrap, but they're in a clinch now. Turn up that sound a lot louder. It'll be safe for awhile."

PLANS NEW HEADQUARTERS

INDIANOLA, IOWA—Ervin Feed Co., Indianola and Milo, has purchased a 350 by 150 ft. tract at the north edge of Indianola where the firm plans to start construction at once on headquarters for their office, hatchery and feed mill. The firm has been located south of Indianola.

U.S. Meat Imports Continue to Rise

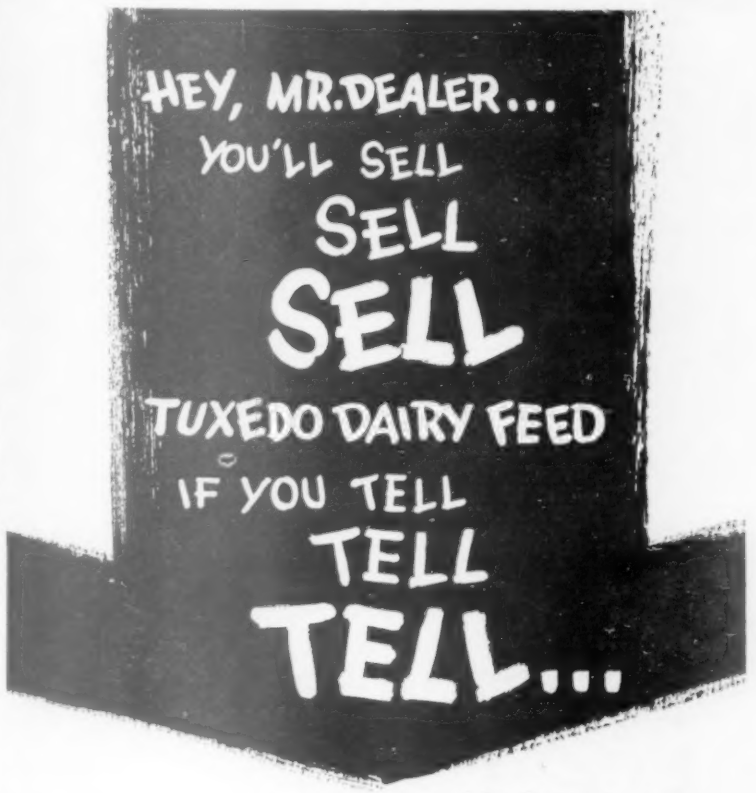
SAN FRANCISCO — U.S. imports of meat and meat products, which increased sharply during the second half of 1957, continued to rise during the first half of 1958. Imports during the first six months of 1958 were more than double those of the same period last year.

The greatest increase was in beef and veal imports, with sharp rises in boneless and carcass beef. Imports from New Zealand, Canada, Mexico, Australia and Ireland accounted for most of this increase.

Pork imports from January to June, 1958, rose 20% above the same period of 1957. The largest increase was in fresh and frozen pork, mostly from Canada.

The very sharp rise in lamb, mutton, and goat meat was mainly because of large imports of boneless manufacturing mutton from Australia and New Zealand.

Imports during the remainder of 1958 will continue to be large and imports for the full year are expected to set a record, states E. Floyd Forbes, president, Western States Meat Packers Assn., San Francisco.



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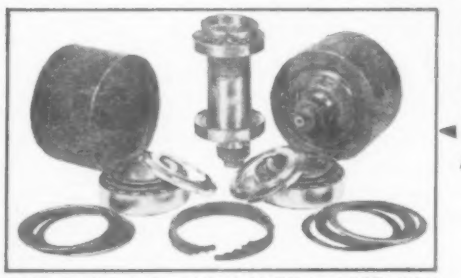

Replacement parts for California Century #931-WFGA. Dimple-faced rolls with snap-in seals and safety seals as shown. ◀

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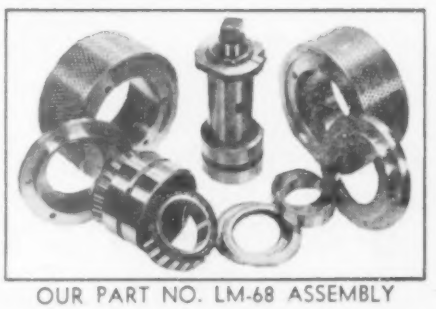
Replacement parts for SPROUT-WALDRON "Pellet Ace" and "Simplex" No. 301 with standard grease seal (snap-in seals and safety seals available). ▶



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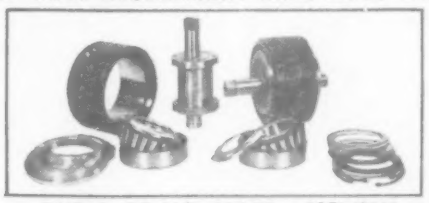
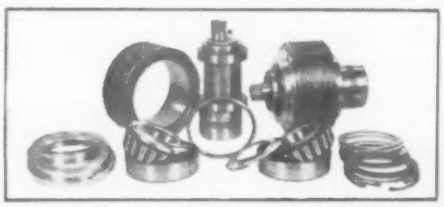


OUR PART NO. LM-70 ASSEMBLY ◀

Replacement parts for Universal AAA pellet mill. Improved assembly using bearing adjusting nut with snap-in seals and safety seals.



▲ OUR PART NO. LM-67 ASSEMBLY

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REGULATIONS

(Continued from page 11)

buying from a trucker who does not have an invoice, bill of sale, or delivery receipt showing that the inspection fee has been paid, must report this tonnage quarterly and pay the inspection fees due.

3. A jobber, shipper or manufacturer outside of Arkansas who sells feed at their dock for delivery, distribution or use in this state, shall keep accurate records for reporting the tonnage and paying the inspection fees thereon.

REGULATION NO. 5
"Brand Name"

1. The brand name of a non-medicated feed may not be derived from one or more ingredients of a mixture, except as provided for in Regulation 11. A distinctive name shall not be one representing any component, or group of components, if a mixture to the exclusion of other ingredients. The brand name of a feed must not tend to mislead the purchaser or misrepresent the feed in any respect.

2. The terms "all grain" or "sweet grain" shall be permitted only in the brand name of feeds composed entirely of grains, molasses and a maximum of 3% minerals.

REGULATION NO. 6
"Screenings"

1. Screenings is the by-product obtained in the cleaning of grains which are included in the U.S. Grain Standard Act and other agricultural seeds. It may include light and broken grains and agricultural seeds, weed seeds, hulls, chaff, joints, straw, elevator or mill dust, sand and dirt.

2. No grade of screenings shall contain any seeds or other material in amount that is either injurious to animals or will impart an objectionable odor or flavor to their milk or flesh.

3. All grades of screenings shall bear minimum guarantees of crude protein and crude fat, and maximum guarantees of crude fiber and ash. When used in mixed feeds, screenings must conform to and be designated in the ingredient statement as follows:

(a) Grain screenings shall consist of 70% or more of grain (light and broken) including wild buckwheat and wild oats. It shall contain not more than 6.5% ash. It shall be labeled "Grain Screenings (from wheat, corn, oats, etc.)."

(b) Mixed screenings is screenings excluded from the preceding grade. It shall be labeled "Mixed Screenings (grain, seeds, hulls, chaff)." It shall contain not more than 27% fiber. If it contains more than 13% ash, the words "sand" and "dirt" shall be included in the parenthetical statement.

(c) Chaff and/or dust is material that is separated from grains or seeds in the usual commercial cleaning processes. It may include hulls, joints, straw, mill or elevator dust, sweepings, sand, dirt, grains, seeds. It shall be labeled "Chaff and/or Dust." If it contains more than 15% ash, the words "sand" and "dirt" shall appear on the label.

4. All screenings containing weed seeds, when used in commercial feeds, shall be ground fine enough to destroy the identity of such weed seeds. A 3½/64 mesh screen is recommended.

REGULATION NO. 7
"Urea"

1. Urea and ammonium salts of carbonic and phosphoric acids are acceptable ingredients in proprietary cattle, sheep and goat feeds only. These materials shall be considered adulterants in proprietary feeds for other animals and birds. The maximum percentage of equivalent protein from non-protein nitrogen must appear immediately below the crude protein in the chemical guarantee as follows:

Crude Protein, not less than.....%
(This includes not more than.....% equivalent protein from non-protein nitrogen.)

If the equivalent protein from non-protein nitrogen in a feed exceeds ⅓ of the total crude protein guaranteed, or if the feed contains more than 8.75% equivalent protein from non-protein nitrogen, the label shall bear (1) a statement of proper usage, and (2) a statement similar to the following in type of such conspicuousness as to render it likely to be read and understood by ordinary individuals under customary conditions of purchase and use:

WARNING: This feed should be used only in accordance with directions furnished on the label.

The substance supplying the non-protein nitrogen must be listed in the ingredient statement.

REGULATION NO. 8
"Medicated Feeds"

1. Feeds containing drug ingredients intended or represented for the cure, mitigation, treatment or prevention of disease, and substances other than feeds intended to affect the structure of any function of the body of animals other than man, must be registered and labeled to give full information to protect the purchaser. Medicated feeds, in addition to other information required, shall be labeled to show:

(a) The name and amount of each therapeutically active ingredient or agent stated as such,

(b) The purpose for which intended,

(c) Adequate directions for use,

(d) Adequate warnings against use under conditions in which its use may be dangerous to health. Provided, the term "drug" as used herein does not apply to vitamin, mineral, or other substances used solely for nutritional purposes.

2. The medicated label format as approved by the Association of American Feed Control Officials should be used.

REGULATION NO. 9
"Chemical Standards for Special Purpose Feeds"

A feed should not be tagged and sold as cow feed, horse and mule feed, hog feed, etc., unless it is especially adapted for the purpose intended. Special purpose mixed feeds shall conform to the following standards:

Name of feed	Minimum protein %	Maximum fiber %
Horse and mule feed	9.0	15.0
Dairy or dairy cow feed....	16.0	15.0
....% protein dairy feed ...	12.0	10.0
(The following statement shall be shown parenthetically directly under the brand name: "To be used with high protein legume pastures, hay or ensilage.")		
Dry and freshening feed	12.0	15.0
Complete pig feed or ration.	16.0	7.0
*Complete hog feed or ration	12.0	8.0
Poultry all-mash broiler ration	18.0	8.0
Chick starting mash	20.0	7.0
All-mash starting ration	17.0	7.0
Growing mash	17.0	8.0
All-mash growing ration	15.0	7.0
Starting and growing mash..	17.0	7.0
All-mash starting and growing ration	17.0	7.0
Laying or egg mash	18.0	8.0
All-mash laying ration	15.0	8.0
All-mash poultry fattening ration	12.0	8.0
Scratch feed	8.0	7.0
Turkey starting mash	22.0	8.0
Turkey starting and growing mash	20.0	8.0
Turkey laying mash	20.0	8.0
Turkey all-mash laying mash.	16.0	8.0
Rabbit ration	15.0	22.0

*Does not apply to feeds especially designed and labeled for breed sows or replacement breeder animals.

NOTE: (a) A ration is a complete food. EXAMPLE—A poultry ration is a feed intended for poultry which does not receive any scratch feed. The "All-Mash" poultry mashes are classified as rations.

(b) These standards do not apply to supplement feeds, and feeds designated and labeled for some special purposes that have a recognized place in the feed program and are not otherwise covered by the above standards.

REGULATION NO. 10
"Adulterated and Mislabeled Feed"

1. No person or firm shall distribute an adulterated and/or mislabeled commercial feed. A commercial feed shall be deemed to be adulterated and/or mislabeled when:

(a) Any substance has been added which is injurious to the health of domestic animals,

(b) Any foreign, mineral or other substance of little or no feeding value has been added, unless the name of each such material is clearly stated on the label,

(c) The composition (chemical and ingredient) differs substantially from that which it is represented to possess by its labeling,

(d) If it contains excessive whole or unground noxious or other weed seeds.

REGULATION NO. 11
"Minimum Protein - Maximum Fiber"

1. Sale of any mixed feed is prohibited if the crude protein guaranteed is less than 9% and/or the crude fiber guaranteed exceeds 18%.

Provided, any mixed feed may be guaranteed to contain less than 9% crude protein and/or more than 18% crude fiber when all the ingredients are prominently listed in the brand name.

NOTE: This regulation does not apply to scratch feeds and rabbit ration as noted in Regulation No. 9 "Chemical Standards for Special Purpose Feeds," and vitamin, mineral and drug carrier feeds or concentrates.

REGULATION NO. 12

1. The definitions, rulings, resolutions, and standards pertaining to "Feedingstuffs" or commercial feeds adopted by the Association of American Feed Control Officials, Inc., as may be subsequently amended, shall be applied in Arkansas insofar as the Feed Law and Regulations may permit.

NOTE: Each feed manufacturer should obtain the annual publication of the Association of American Feed Control Officials. This publication contains the current regulations and resolutions as well as definitions of the various feedingstuffs.

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Advances in Dairy Cattle Feeding During the Past 50 Years

Many factors have contributed to the marked increase in milk production per cow, but better feeding has made the greatest contribution. Meanwhile, there is still a good deal of room for improvement, and further progress is expected as a result of the current "rumen revolution"

By Dr. C. F. Huffman
Michigan State University

EDITOR'S NOTE: This is the fifth in a series of Feedstuffs articles being published as part of the observance of the feed industry's "Golden Year." The 12 months following the American Feed Manufacturers Assn.'s 50th convention, in May, 1958, were designated as the Golden Year, focusing attention on industry and feeding progress. In this connection, Feedstuffs is presenting a series of articles on nutritional advances and feed industry operations. In the accompanying article, Dr. C. F. Huffman outlines advances in dairy cattle feeding over the past half century. At the same time, he provides a look at the present status of dairy cattle feeding and also takes a look into the future.

A Golden Year Feature

Dairy cattle feeding had a good start when the American Feed Manufacturers Assn. was organized, thanks to the advancements in the art of feeding and to some extent to the science of nutrition. This early progress was primarily due to the fact that cows are geared to transform large amounts of roughage into nature's most perfect food for the pleasure and health of man. Forage supplied dietary factors needed to supplement grains. Then, too, the food constituents made by the microbes inhabiting the fermentation vat (rumen, reticulum, omasum) made better feeding possible long before vitamins were discovered or, for that matter, before people knew about bugs in the rumen.

In contrast, the advancement in feeding of non-ruminant animals such as the chicken and the pig had to wait for scientists to discover vitamins and the role of amino acids and minerals in nutrition. The hen laid eggs in the spring when worms, bugs, young grass and potent sunshine were available to balance the ration. Winter egg production was almost nil. The pig did not have a long snout as a badge of beauty but for rooting in the soil to obtain bugs, nuts and roots to balance its diet of corn. The old adage "root hog or die" was true.

The fermentation vat. Although early investigators were not aware of the role of the fermentation vat in the handling of roughages, Stevens (1777) and Spallanzani (1781) placed perforated metal tubes containing grass in the rumen, and observed the loss of dry matter. Tiedmann and Gmelin in 1826 found butyric acid, carbon dioxide and ammonia in the rumen, and Tappeiner (1884) reported that the end products of fiber digestion were gases and fatty acids. The rumen fistula (window cow) was first used by Flaurens in 1844.

It is amazing how few scientific studies were made on the fermentation vat during the first one third of the present century. This is difficult to understand in view of the good start made in the 18th and 19th centuries. During the 1930's, Baker of England really stirred up the quiescent field of rumen nutrition. He worked out methods of studying rumen microbes which enabled him to show that these microscopic organisms digested fibrous feeds by producing enzymes that did the job. This was a big step forward since the ruminant does not produce such enzymes. Since Baker's time, many different kinds of microbes have been tracked down by rumen microbiologists.

Another tremendous advancement was made when Hart and his associates of the University of Wisconsin proved that rumen microbes made high quality protein from simple nitrogen compounds such as ammonium carbonate and urea.

The forward progress continued in the early 1940's. A group of scientists at the University of Cambridge in England showed that rumen microorganisms converted carbohydrates (starch, sugar, celluloses, hemicelluloses) to the short-chained volatile fatty acids — acetic, propionic, and butyric, in the ratio of 70, 20 and 12. They also proved that these fatty acids were absorbed through the rumen wall. An appreciable amount of the energy that cows get from their feed comes from these acids.

The calf becomes a ruminant. The calf comes into the world as a non-ruminant. One of the problems in calf

Dr. C. F. Huffman

AUTHOR — Dr. C. F. Huffman, research professor in the dairy department at Michigan State University, East Lansing, is a leading authority on dairy cattle nutrition. He is widely known for his work on "rumenology" and for studies with rumen fistulas and the duodenal fistula. Dr. Huffman has more than 130 publications as a result of his research, and he has received the Borden award and the American Feed Manufacturers Assn. award for outstanding contributions in dairy nutrition studies. He received his bachelor's degree from Kansas State College, a master's degree from the University of Minnesota and his doctorate at the University of Wisconsin. After a tour of flying duty in World War I, a year of dairy husbandry research at Kansas State and a year of showing and feeding cattle, he joined the Michigan State staff in 1922 as a research assistant. He has been at MSU since.

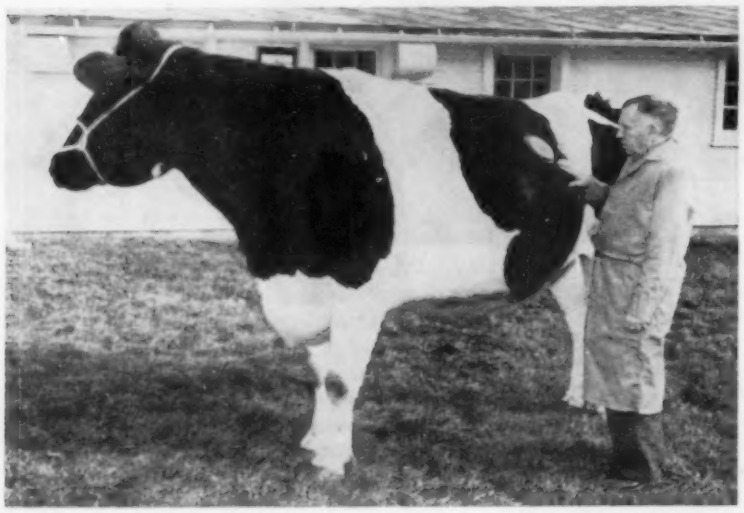

FIGURE 1. A 2,300-lb. rumen fistula (window) steer used in casting light into the fermentation vat. (Mich. Agr. Expt. Sta.)

FIGURE 2. The use of the duodenal fistula allows a study of the rumen balance of constituents not absorbed through the stomach walls. (Mich. Agr. Expt. Sta.)

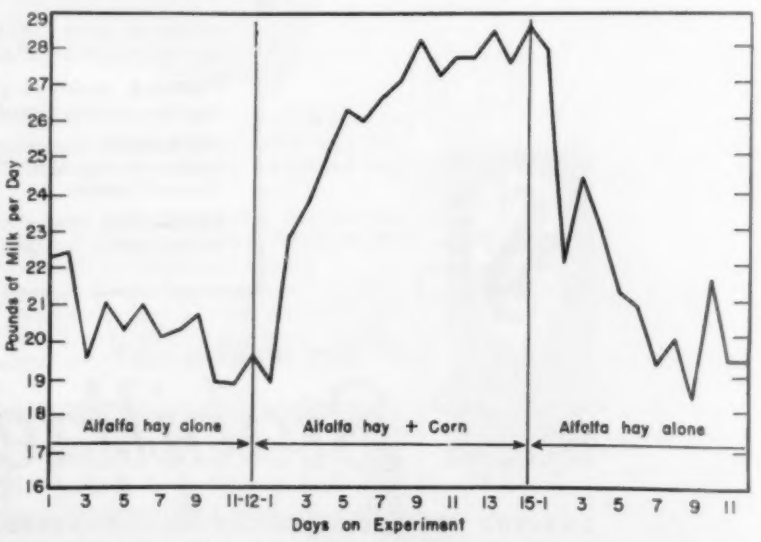

FIGURE 3. The effect on milk production of changing from an all-alfalfa hay ration to an alfalfa-corn ration and back to all-alfalfa hay, keeping T.D.N. the same. This shows the need for grain to balance the ration. (Mich. Agr. Expt. Sta.)

feeding is to learn how to feed the young calf so that it has a functioning fermentation vat at an early age. This transition appears to occur from four to six weeks of age.

Fifty years ago, calves were usually fed whole milk for about two months and skim milk to about six months of age. Either coarsely ground or whole cereal grains were also fed along with hay. This system of raising calves was adapted to farms where cream was sold. The expanded whole milk market, brought about by a greater appreciation of milk as a food, increased the need for good milk replacers. This was accomplished by using a high percentage of dry skim milk powder, dried buttermilk and dried whey.

Energy. The discovery of oxygen and its vital role in energy metabolism by Laviosier in 1780 resulted in the development of calori-meters for use in studying energy relations. The first energy experiment with cattle was carried out by Henneberg and Stohmann of Germany in 1869. In 1900, Kellner of Germany, using carbon and nitrogen balance studies, determined the productive energy value of several feeds, including pure nutrients such as starch, fat, protein and cellulose. From the data on pure nutrients, Kellner determined the theoretical net energy value (milk, meat) of a few concentrates and roughages. Then he determined the actual net energy value of these feeds and found that the values for concentrates agreed with the theoretical values. In case of the roughages, however, the actual net energy values were less than the theoretical and appeared to decrease with increased crude fiber content.

Kellner calculated the net energy value of all feeds by discounting the digestible nutrients on the basis of the amount of crude fiber. These values were converted to starch equivalents so that farmers could more easily understand them. This system (starch equivalents), with a slight modification, is used as a basis of

FIGURE 4. Normal teeth of a dairy cow.

FIGURE 5. Worn teeth as a result of feeding a mineral supplement high in fluorine. (Mich. Agri. Expt. Sta.)

feed evaluation for cattle in many countries. Several investigators in the U.S. have worked out productive energy (net energy) values by using a discount method based on the crude fiber content.

We use TDN (total digestible nutrients) in the U.S. for evaluating the energy value of feeds. It is well known that TDN is not a reliable system of measuring feeds, but these values are easy to obtain and are about as reliable under farm conditions as calculated net energy, digestible energy or metabolizable energy. Before the energy problem is cleared up, a lot of research is needed to

(Turn to page 22)

FIGURE 6. A milking cow suffering from cobalt deficiency.

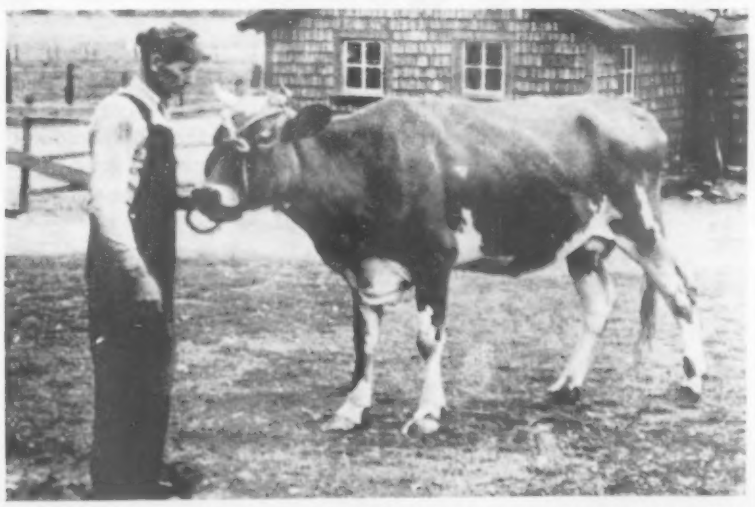

FIGURE 7. The same cow as in Fig. 6, 16 days after starting cobalt feeding. (Mich. Agr. Expt. Sta.)

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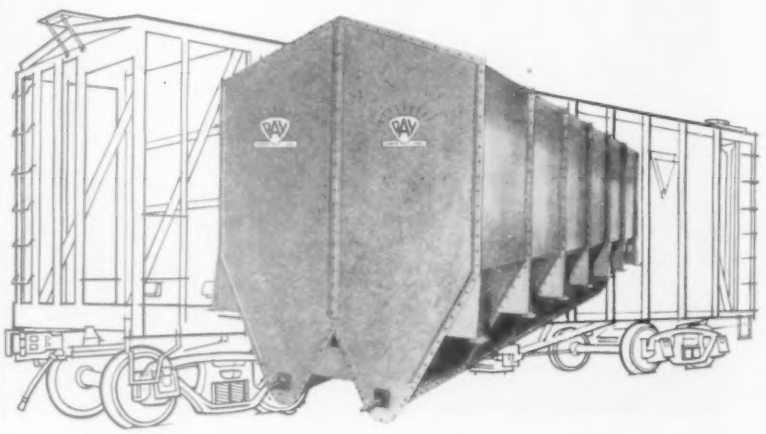

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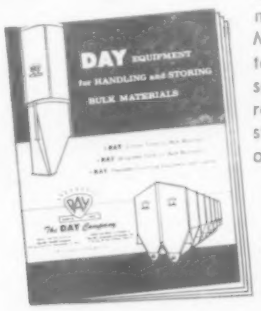

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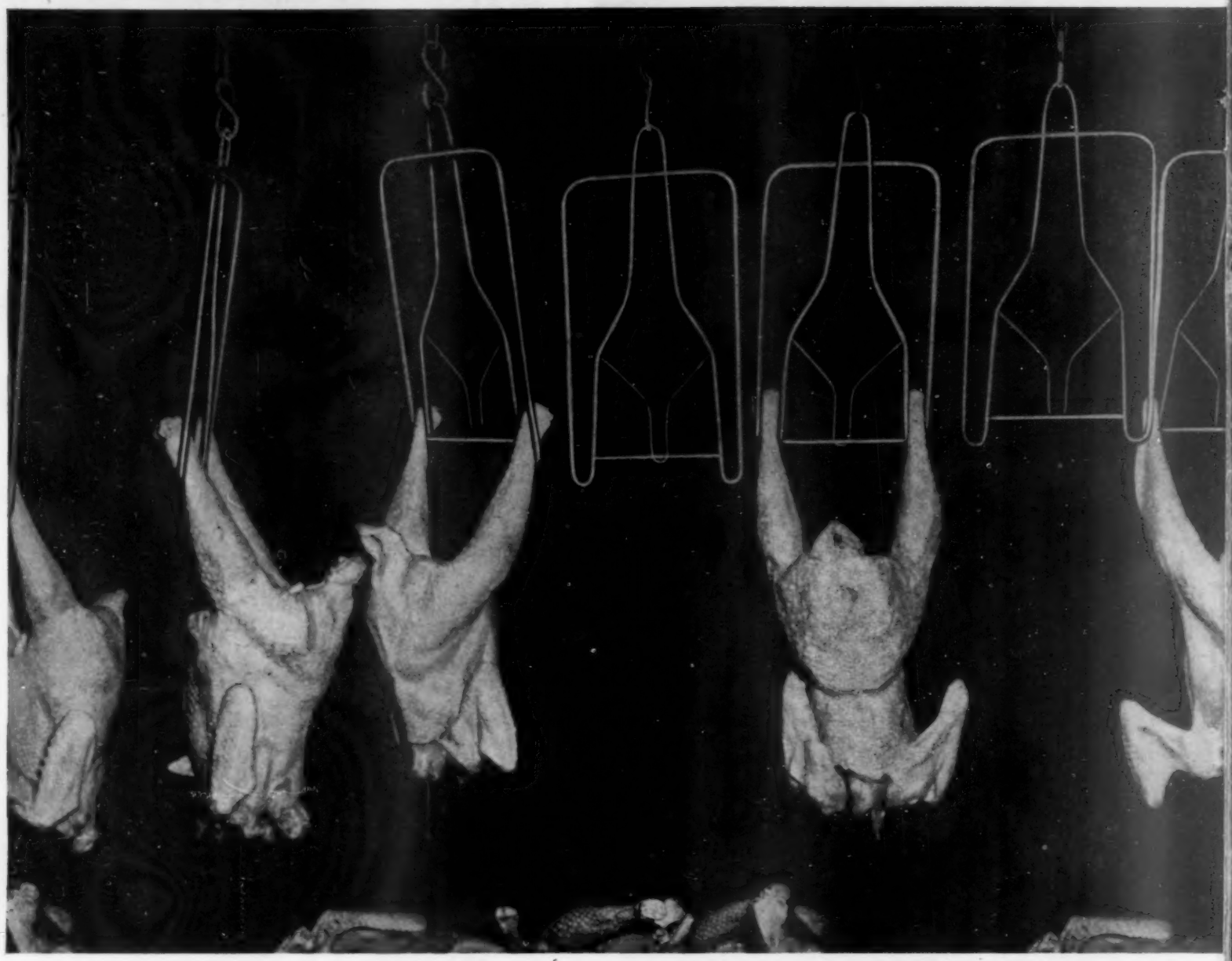

Feed manufacturers, broiler growers and processors

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After January 1st, 1959—everyone connected with the broiler industry will have a stake in winning this mark of approval. Good plant sanitation, healthy birds, proper grading — these are all prime requirements for securing this necessary mark of approval.

To feed manufacturers and broiler growers, one of these is most important of all: *healthy birds.* Birds that stay

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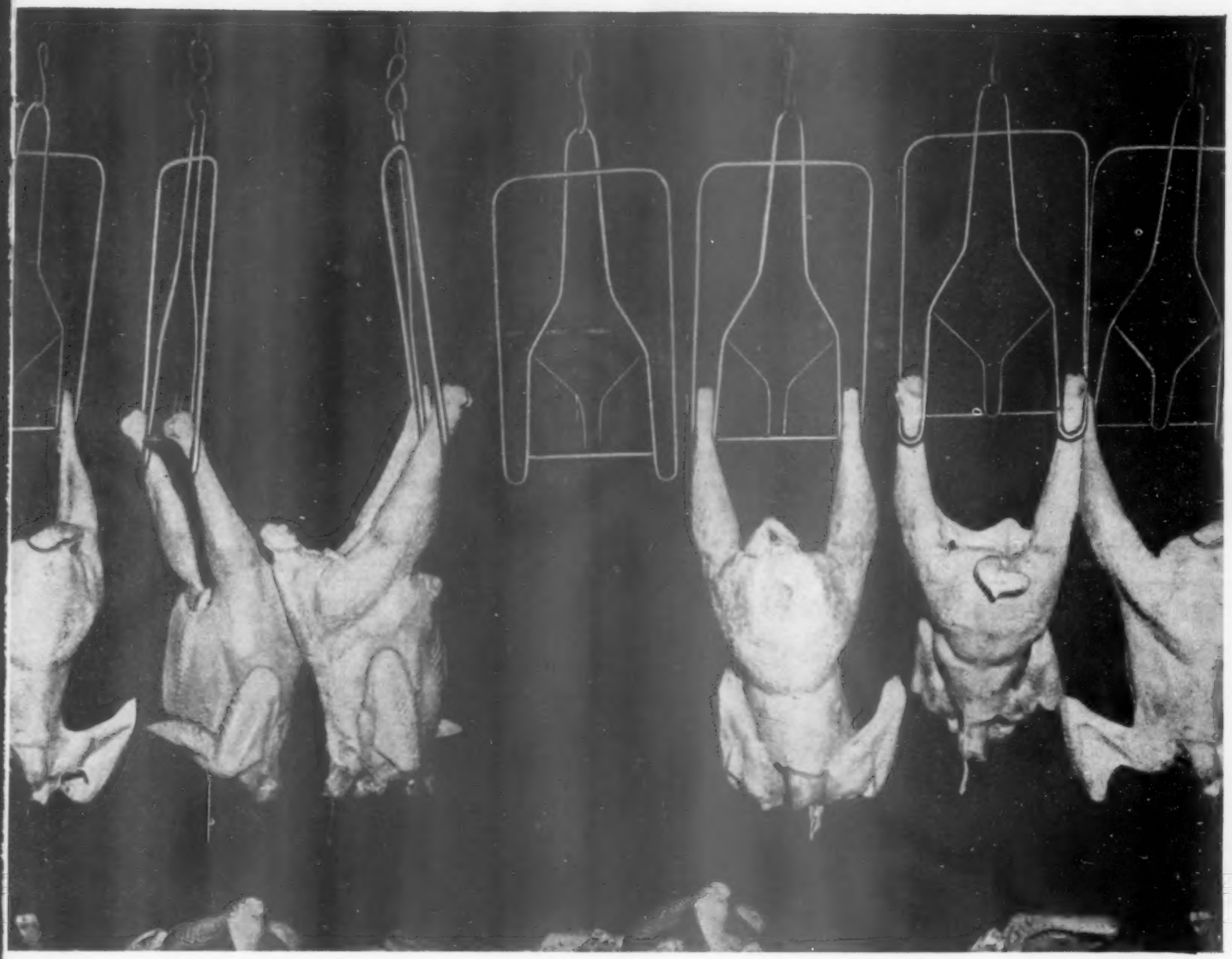

work together to:

throw-outs!

healthy throughout their lives and reach processors in fine finish. When your feeds contain AUREOMYCIN® Chlortetracycline, you have a powerful weapon to protect your broiler growers and to safeguard processors.

Your good feeds with AUREOMYCIN provide "health insurance" against two costly diseases: chronic respiratory disease and synovitis. These two diseases are the cause for lesions in the air sac, joints and breasts which result in the vast majority of market condemnations.

Continuous feeding of your good broiler feeds with high levels of AUREOMYCIN is your growers' best assurance of suppressing CRD and preventing synovitis.

Be sure your broiler feeds contain AUREOMYCIN. Urge your growers to give this feed the *first* day and *every* day! Urge them to "start *now* to reduce throw-outs!"

AUREOMYCIN

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SPEAKERS AT IOWA CONFERENCE—A two-day session at Iowa State College recently gave feed industry representatives and college researchers one session for discussion of problems and misunderstandings which have arisen from the rapid growth of the feed industry and another session the second day beamed at dealers and salesmen. Some of the speakers at the conference are shown here. In the first picture, Tom Lawrence, Lawrence-Leiter & Co., Kansas City, is speaking to the conference. The second photo shows a group of the speakers. Standing, left to right, are: Dr. Norman L. Jacobson, Iowa State College; Ray Van Poucke, Ames (Iowa) Reliable Products Co.; Hugh Kelley, Feed Specialties, Inc., Des Moines; Dr. Ernest Bechtel, General Mills, Inc., Indianola, Iowa. Seated, left to right, are: L. Z. Eggleton, Iowa State College; Dr. Leslie Johnson, Iowa State College, and W. G. Zmolek, Iowa State College. The third photo shows Vaughan C. Speer, Iowa State College, talking on swine nutrition.

learn why a pound of TDN in concentrates is worth more for milk and meat production than a pound in roughage. This is the heart of the roughage problem. Until it is solved, the feeding of dairy cattle will be more of an art than a science.

Protein. Magendie, in 1816, demonstrated the need for protein in the ration, and Boussingault confirmed it in 1836. The digestible protein required for the maintenance of a 1000-lb. cow was reported to be 0.6 lb. daily by Henneberg and Stohmann in 1860. This value was confirmed by Haecker (1903) and is the same value as used today (Morrison's lower limits). Early requirements for the amount of protein needed for milk production, which were worked out in the 19th century, were too high. Haecker, in 1914, reported the amount of digestible protein required per pound of milk above maintenance. He took into consideration the percentage of fat in the milk, since protein tends to follow the fat. This standard is in use today (Morrison, lower limits).

Minerals. Boussingault, the father of dairy cattle feeding, attempted to determine calcium and phosphorus balances in 1845. Mineral studies at that time, however, had very little meaning because the symptoms of mineral deficiencies were complicated by deficiencies of dietary factors yet to be discovered. Balance trials (1910's and 1920's) indicated inefficient use of calcium by milking cows. Then, too, the symptoms of vitamin A deficiency, associated with the feeding of timothy hay and straws, were erroneously attributed to calcium deficiency. Long-time experiments at the Vermont and Michigan stations in the 1920's showed that milking cows fed good quality timothy hay use calcium efficiently. A disturbed calcium metabolism, however, is associated with milk fever. The cause of this disease is not known.

As a general rule, roughages are good sources of calcium and poor sources of phosphorus, and grains are poor sources of calcium and fair sources of phosphorus. It is not surprising, therefore, that in some regions of the world cattle suffered from a lack of phosphorus. Theiler, during the 1911-1920 period, investigated a disease among range cattle in South Africa that was manifested by depraved appetite and emaciation. This trouble responded to phosphorus supplementation. In long-time feeding experiments at the Minnesota and Michigan stations, affected cattle were cured with phosphorus supplements. The Michigan station (1933) in long-time phosphorus studies with milking cows under controlled conditions, using balance trials and inorganic blood phosphorus studies, worked out the phosphorus requirement for milk production that is in use today.

Cobalt deficiency masqueraded under many unusual names such as "pinning," "salt sick," and "neck ail" until 1934, when workers in Australia and New Zealand, by a fine detective job, found that a lack of this element caused the trouble. In 1948, several investigators discovered vitamin B_{12}. Later work showed that it contained 4% cobalt and that rumen microbes are able to make plenty of this vitamin for their hosts when sufficient cobalt is fed.

Neal and co-workers at the University of Florida in 1931 were the first to show that copper deficiency occurs in cattle. The similarity of symptoms of copper deficiency and those of molybdenum toxicity resulted in the feeding of copper to overcome molybdenum toxicity by English workers in 1938.

Though the magnesium needs of dairy cattle are met by amount present in the usual ration fed, under certain conditions cattle develop a disease called "grass tetany." The results of recent experiments indicate that over-production of ammonia in the rumen decreases magnesium absorp-

SW

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Over 95% of the feed manufactured by Desert Gold is sold in bulk. In addition to operating the feed manufacturing plant, the company operates a feed lot which is highly mechanized and laid out with the hope of eventually feeding between 5,000 and 7,000 head. The feed lot uses part of the feed plant production and serves as a practical research and demonstration center at the same time.

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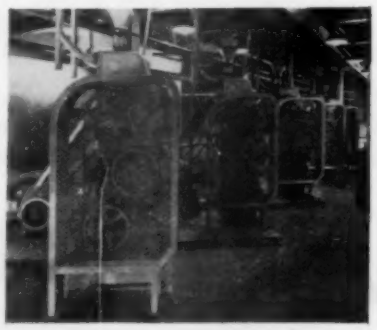
The popularity of Hiram Walker's famous Canadian Club whiskey is attributed to their never ending search for high and uniform quality. In keeping with this policy, Hiram Walker recently installed five, three-pair high, one-point control Sprout-Waldron roller mills to grind the rye, the corn, and the barley malt. The chief advantages of these Sprout-Waldron roller mills at Hiram Walker is reported to be their flexibility with respect to changing the grind for various grains, their trouble-free operation and the lack of any appreciable heating of the grains during high speed operations. Proper adjustment of roll speed and clearance has meant a uniform product without screening, and enabled Hiram Walker to bring the product to size, minimize flour or fines, insure uniform extraction of alcohol and minimize acid formation. FP/112



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tion. This may trigger the onset of grass tetany.

Vitamins. Bechdel and associates in 1928 were the first to show the microbial synthesis of vitamin B in a classical experiment with Penn-State Jessie, a rumen fistula cow. About 1940, McElroy and associates of the University of California demonstrated the microbial synthesis of most of the members of the vitamin B complex and vitamin K. Since vitamin C is made in the tissues, the only vitamins needed in the rations of the cows are vitamins A, D and E. The classical experiment of Babcock and Hart of the University of Wisconsin (1908 to 1920), where cows that were fed rations of oat or wheat plant alone gave birth to weak and blind calves, led to the discovery of vitamin A. During the 1930's, experiments at several experiment stations showed that vitamin D is needed by growing cattle.

Present Status of Dairy Cattle Feeding

The average milk production per cow in this country increased from about 2500 lb. to about 6300 lb. yearly during the past 50 years. Although there are many factors contributing to this increase, most authorities agree that better feeding made the greatest contribution. Certainly the marked improvement in the nutritive value of pasture, hay and silage crops has done a lot to bring about this increase in milk production. The dairy business hinges on the use of cheap nutrients in roughages. Better roughages not only supply more nutrients, especially energy per pound of dry matter, but also result in greater consumption per cow. The old thumb rules called for the feeding of 2 lb. of roughage per 100 lb., while the present rules are 2.5 to 3 lb. per 100 pounds of liveweight. Another contributing factor to the increased milk production per cow has been the increased amount of grain fed per cow per year. Although early grain feeding estimates are not available, the estimated amount in 1942 was 1200 lb., compared with more than a ton per cow yearly today.

Our goal in feeding dairy cows is more high class pasture, hay and silage; yet dairymen generally have considerable amounts of poor roughage such as mature hay, straws, corn stalks and corn cobs. The proper balancing of these roughages with protein, needed minerals and grain, and some high-class roughage results in marked increase in their nutritive power. Even corn cobs, that were once looked upon with scorn, have attained a considerable degree of respectability.

The amount of protein in the grain mixture is geared to the kind of roughage fed. With legume-grass mixtures, a grain mixture containing 12 to 16% crude protein is generally used. When the roughage is a low protein grass hay, a grain mixture containing 18% protein is generally used. The discovery that rumen mi-

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MOREA *liquid feed is a balanced combination of urea nitrogen, ethanol, phosphoric acid, essential trace minerals and molasses, for "free-choice" feeding to cattle or sheep—along with plenty of roughage and water, and some grain and minerals.* MOREA *liquid feed produces more and better quality milk and meat at lower cost. It is as good for livestock on the range as for feeder animals or dairy cows. It's the only feed supplement containing ethanol, the "hydrogen donor" that helps ruminants make better use of roughage, grain and dietary nitrogen.*

You'll find MOREA liquid feed easy to mix and handle—even in cold weather. Get all the facts on this better, more profitable feed for cattle and sheep. Write today—mixer-distributorships are still available in certain areas!

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crobes convert poor protein and even non-protein nitrogen to a fairly high quality protein for their host has resulted in the use of urea as part of the protein in the ration of cattle. Simple nitrogen compounds can be used to replace up to 25% of the protein in the ration of growing heifers and milking cows.

The mineral elements most likely to be needed as supplements to the ration of growing heifers and milking cows are sodium and chlorine (supplied by common salt), phosphorus, cobalt and iodine. Salt is fed free choice or as 1% of the grain mixture or both. Phosphorus, in the form of bone meal, or phosphate compounds low in fluorine, is fed usually as 1% of the grain mixture, unless the grain mixture contains appreciable amounts of high phosphorus protein supplements. Usually a trace amount of cobalt as cobalt carbonate and stabilized potassium iodide are mixed with salt as a trace element mixture. Rations commonly fed to dairy cattle usually supply the other essential mineral elements.

The only vitamins needed in the ration of growing cattle and milk producing cows are vitamins A, D and E. Usually, the vitamin A needs of cows are met by the consumption of carotene rich roughages. This vitamin is stored in an appreciable amount in the tissues of the cow during periods of high carotene intake, which enables her to get along with rations fairly low in carotene for some time. In drouth stricken areas where high carotene roughages are scanty, a vitamin A supplement may be needed. The vitamin D content of roughages along with solar radiation takes care of the vitamin D needs of growing heifers and milking cows. Rations fed to dairy cattle usually furnish sufficient vitamin E.

The newborn calf, however, is a different story. Vitamins A and D are added to milk replacers to insure an adequate supply of these vitamins. Milk replacers high in dry skim milk and dried whey supply plenty of the vitamin B complex. Also, antibiotics (chloretrocycline and oxytetracycline) are added to milk replacers to increase the health and growth of calves.

Where Do We Go From Here?

We are in the midst of a rumen revolution. Rumen scientists will eventually learn how to feed so as to encourage the growth of desirable microbes and discourage those that do not contribute to the host. About 10% of the digestible energy fed to a cow is lost as gas (methane and carbon dioxide) during rumen fermentation. The production of high energy gas methane will be reduced, if not abolished, thereby increasing feed efficiency. Then, too, we can expect the solution of the ketosis and bloat problems.

One of the big leaks in the dairy business is the loss of nutrients during conservation of roughages as hay and silage. The developing of a method for preserving these crops without loss will receive a lot of study in the years ahead.

Increased production of high quality forage per acre will increase milk per acre and per cow. Roughage intake will be increased by breeding cows with a ravenous appetite for forage. Factors in the ration that promote greater roughage intake will be discovered as a result of scientific research. The changes will result in greater milk production from roughages. The development of rules for feeding grain with various qualities of forage is a must in order to take advantage of increased roughage quality and increased appetite.

Automatic feeding of roughages and concentrates during the barn feeding period will soon be a reality. This will enable dairymen to keep feed records and prevent over or under feeding. This will mean more efficient conversion of feed to food.

The best method of feeding roughages, either as long, chopped, or pelleted hay, or as silage, or in some other form, will be determined. Greater use of corn silage, in order to reduce corn stalk waste, is in the cards. Also, the best method of preparing grains for feeding will be worked out.

The big pay-off, however, will be the solution to the most important problem in dairy cattle feeding—why does a pound of TDN in concentrates produce more milk than an equal amount in roughages? This solution will require greater knowledge of what happens to carbohydrates (starch, sugar, celluloses and hemicelluloses) in the fermentation vat and how to trap the energy from these compounds for increased feed efficiency. The cause of the decline in efficiency of feed utilization as the plane of nutrition increases will be solved.

Program Topics Set For N.D. Swine Day

FARGO, N.D.—Program topics for the 1958 North Dakota Agricultural College Swine Day Nov. 5 will cover most phases of the states swine industry, according to M. A. Kirkeide, NDAC extension livestock agent.

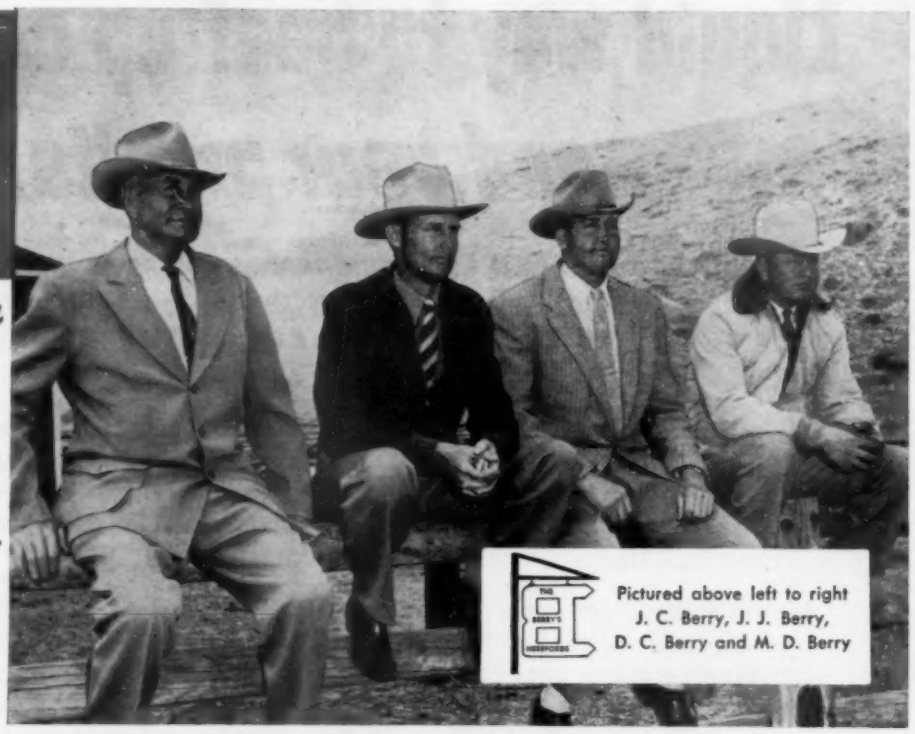
Topics for the morning session, which opens at 9:30, include "The Outlook for Hogs in North Dakota," "Crude Fiber in the Hog Fattening Ration," "Wormy Pigs, Their Treatment and Prevention" and "Some Factors to Consider in Marketing Hogs."

The afternoon session, beginning at 1 p.m. includes "The Meat Type Hog on Foot and in the Carcass," "Lysine, an Important Ingredient in Pelleted Barley Rations," "Anemia and Its Prevention," "Gestation Rations for Sows," and a final summary topic, "Where Do We Go from Here?"

Specialists from the department of animal husbandry and veterinary departments at NDAC will be the speakers. Question and answer periods are included at both morning and afternoon sessions.

WHY DEHY?

"You get your answer when the calves come in the spring", says Jay C. Berry, Cheyenne, Wyoming. He and his three sons breed purebred Herefords; their breeding record shows a



Pictured above left to right J. C. Berry, J. J. Berry, D. C. Berry and M. D. Berry

95% OR BETTER CALF CROP AT WEANING TIME

The Berrys, who keep a 150-cow herd of purebred Herefords on their 8,000 acre ranch, wanted more Vitamin A and went to a concentrate of half-dehy, half soybean and cottonseed, plus trace minerals and bone meal. Starting about December 1st, they feed this to the cows at the rate of a pound a day, plus hay as needed, switching in April to 75% dehy and 25% corn for more Vitamin A and energy.

In 1955 this herd produced a *100% calf crop, and 95% or better every year since*, with little serious illness or calving trouble . . . and the Berrys give dehy a lot of the credit. "When the calves come in spring, that's when we know the results of our feeding program", Mr. Berry says — and results at The Berry Hereford ranch certainly speak for themselves.

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If percentage of hens lost through culling and mortality is:	In order to house this number of pullet replacements per 1000 chicks:	You will need to start this number of chicks:
30	300	430
35	350	501
40	400	572
45	450	644
50	500	715
55	550	786
60	600	858
65	650	929
70	700	1,000
75	750	1,072
80	800	1,144
85	850	1,216
90	900	1,287
95	950	1,359
100	1,000	1,430
110	1,100	1,573
120	1,200	1,716

NOTE: If straight-run chicks are used, double the figures in the right hand column. If the incidence of mortality is lower than expected, surplus pullets may be sold off as ready-to-lay pullets, or dressed out. Some poultrymen will profit from the housing of extra pullets in temporary quarters. These may be used as a reserve to replace any birds lost as a result of early mortality or culling during the first few months of production.

DAILY FEED CONSUMPTION TABLE (per 100 layers)		
Percentage of Birds in Production	Total Daily Feed Consumption	
	Heavy Breeds	Leghorns
50	28-29 lb.	24-25 lb.
60	29-30 lb.	25-26 lb.
70	30-31 lb.	26-27 lb.
80	31-32 lb.	27-28 lb.

COMPARISON OF LAYER WEIGHT AND FEED CONSUMPTION			
Hen Weight (Lb.)	Maintenance Only (Lb.)	Feed Maintenance and 250 Eggs (Lb.)	Per Dozen Eggs (Lb.)
3.5	52	88.0	4.2
4.0	57	92.0	4.4
4.5	61	96.5	4.6
5.0	65	101.0	4.8
5.5	70	105.0	5.0
6.0	74	109.0	5.2

NOTE: A 4 lb. hen will consume approximately 57 lb. of feed per year, for maintenance purposes only. Heavy hens consume an additional 8 or 9 lb. of feed for each extra lb. of weight. Beyond the requirements for basic body needs, each dozen eggs is produced on 1²/₃ lb. of feed, regardless of body weight or rate of lay.

FEED CONSUMED PER DOZEN EGGS		
No. of Eggs per Year	Total Feed Consumed (Approximate)	Lb. of Feed per Dozen Eggs
120	75 lb.	7.5
160	80 lb.	6.0
200	86 lb.	5.2
250	93 lb.	4.5

Prepared for members of the feed and poultry industries in the interests of better poultry health and nutrition. Copies of this and others in the series of Service Bulletins are available on request. Merck & Co., Inc., Chemical Division, Rahway, New Jersey.

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Double Check

Critical B Vitamin Levels in your

LAYING RATIONS

Compare the recommended levels of B vitamins at right with those you are formulating in your layer feeds. If your feeds look low on essential B vitamins consider this fact: consumption of high-energy, low-vitamin feedstuffs like corn and fats results in lower feed intake. This means that your high-energy feeds must have more nutrients per pound of ration to support maximum egg production.

It's obviously to your benefit to check the B vitamin levels of your layer rations every time you change ingredients, suppliers or increase caloric content. Then, to assure yourself of trustworthy supplemental vitamin levels, specify Merck Vitamin Mixtures and be confident that every beakful of your feed contains the adequate vitamin content you planned.

Vitamin	Total recommended levels (Gm./ton) Layer	Breeder
Riboflavin	**4**	**5**
Calcium Pantothenate	**12**	**14**
Niacin	**25**	**25**
Choline Chloride	**1000**	**1200**
Vitamin B_{12}	**3.0** (mg./ton)	**6** (mg./ton)

ASK THE MERCK MAN

With the exciting advances in animal health and nutrition continuing at an ever-increasing pace, it really pays to keep in touch with your Merck Man. Since most of these advances revolve around microingredients like amino acids, coccidiostats, antibiotics, and vitamins, it is obvious you will benefit by being close to a specialist in both therapeutic and nutritional microingredients.

Your Merck Man not only brings you the great fundamental discoveries of Merck research, but he helps acquaint you with practical and developmental improvements such as water-dispersible supplements. During the past ten years Merck research teams and technical service staff have come up with Vitamin B_{12}, NICARB®, S.Q.®, and the use of Procaine Penicillin in feeds. This proved history of success forecasts beyond question of doubt that new developments from Merck research are coming soon.

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Booklet Published on Multiple Farrowing, Confinement Feeding

DANVILLE, ILL. — A 48-page booklet on multiple farrowing and confinement feeding programs for swine has been published by the William Davis Co., Inc., feed division, at Danville.

"The booklet covers the entire confinement feeding operation for hogs," said W. L. Lavery, manager of the company's feed division, sponsor of Swisher Feed Service. "It is a practical, common sense approach to the subject of confinement feeding of hogs and is designed to reduce production costs and increase profits."

He went on to say that a great deal of interest in the confinement feeding of hogs from birth to market has come about through the great advancements that have been made in nutrition during the last few years.

"It is now possible to raise pigs economically and profitably from birth to market without the use of pasture. However, before pigs can be raised successfully on cement feeding floors, the fundamental principles of proper nutrition, sound management and a good sanitation program must be followed."

The booklet outlines basic floor plans and construction and management recommendations built around three stages—farrowing, nursing and growing-finishing.

According to Henrie L. Miller, swine specialist of Swisher Feed Service, the booklet is an assembly line for the production of market hogs, and is set up to provide for the maximum use of housing facilities and equipment. "This booklet outlines a program which is organized for the farrowing of six sows each month, and the selling of 50 market hogs each month, or a total of 600 market hogs each year. It is designed for efficiency and for the lowest possible production costs," he said. Mr. Miller wrote the booklet.

To emphasize the value of confinement feeding, Mr. Lavery described an experiment at Purdue University designed to compare feeding hogs free-choice rations in dry lot and on pasture.

"The pasture reduced the feed cost to produce 100 lb. of gain by only 44¢. This means that if 20 hogs were fed per acre and each gained 180 lb. from weaning to market, the pasture would have been worth only $15.84. This makes it unprofitable to use valuable farm land for hog pasture," he declared.

"The raising of hogs in confinement from birth to market has many advantages. The trend in the hog industry is definitely in this type of operation because it allows a high degree of specialization and improved efficiency, resulting in increased income."

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Linear Programming—Part 4

Simplifying Your Feed Mix Problem for Solution by Linear Programming

With linear programming, the burden of feed mix computation can be shifted to computers. But that is no reason for making the problem more complex than necessary. The nature of the "model" used and the solution routine followed can make a big difference in computing time

By Dr. Robert F. Hutton
Pennsylvania State University
Copyright 1958, Robert F. Hutton

EDITOR'S NOTE: This is the fourth of a series of seven articles on linear programming and its application in the feed industry. It is a tool which is becoming of increased importance in solving complex feed mix problems as well as various management problems in the feed and other industries. Dr. Hutton, a leader in research on the use of linear programming in formulation of least-cost feeds, explains in this article how a feed mix problem may be simplified for solution by linear programming, thereby speeding the solution process and reducing necessary computer time. For those feed men who would like to have at hand the information in this series of articles, it is expected that the material in the articles will be available in reprint form upon completion of the series. Details later.

One of the benefits of using linear programming in formulating your feed mixes is that you can efficiently handle the very complex mathematical problem involved. The burden of computation can be shifted upon the broad shoulders of automatic computers. But, just because these computers can solve complex problems efficiently is no excuse for making the problem any more complex than necessary. Doing so will increase your computation expense and slow down the solution process unnecessarily.

In this article we will consider some things that may be done to simplify the linear programming "model" of your mixing problem. Specifically we will discuss what has been done to simplify the model for a 16% dairy feed we have worked with for about four years. We have cooperated in this work with the mills division and the research division of the Cooperative G.L.F. Exchange, Inc., Ithaca, N.Y. The more technical aspects of the work to be discussed in this article have been reported in two journal articles (1). You may wish to consult these sources for greater detail on the procedures.

THE ORIGINAL MODEL: The objective of our initial investigation was to formulate a workable linear programming model of a feed mix problem as this problem was defined by the feed miller. It may be of relevance to mention that the mix problem as defined by the miller is quite different from the problem as defined by the research nutritionist. Moreover, these differences in problem definition result in substantial differences in mix cost. We have not attempted to resolve these differences in order to get on with the immediate problem but have accepted the miller's viewpoint.

Developing this model took a very long time—about 18 months. One reason it took so long was that we were breaking new ground (at least as far as we were concerned). I was completely uninformed on mill operation problems, and Fred Hessel of G.L.F., who was cooperating with me, probably knew more of linear programming than I did of milling, but this was not much. We were, also, separated by nearly 200 miles. You should not have all our problems since there are now applied mathematicians working for computer firms who understand your problems and also linear programming; and, of course, you now know quite a bit about linear programming.

As with the broiler feed, we ran some flukes. One of these arose from a misunderstanding concerning the ingredients to be included in the feed mix. The result was a dairy feed with about 10% of fish solubles. This was good for some laughs, but it made a point with Dr. Stiles of the G.L.F. research division. He sees linear programming as a method of explaining the cost consequences of doing things we now consider offbeat. If the possible savings warrant, research can then be conducted to determine their feasibility.

(Incidentally, I have since discovered that fish meal is commonly used as an ingredient in dairy feeds in England.)

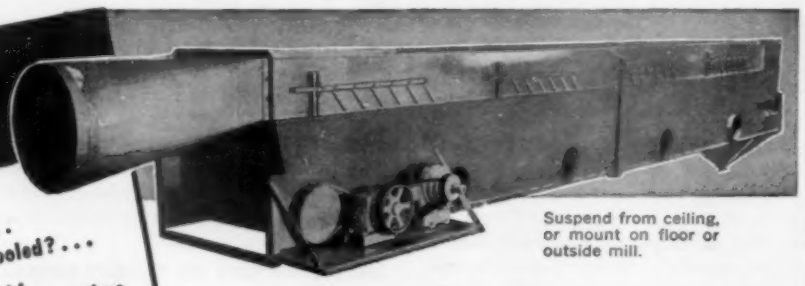
We finally got a model that would work. That is, it would give formulas that were consistent with the restrictions placed upon the mix by the mill. It may also have been operational, but for several reasons, not related to the adequacy of the model, it was not put into use. There was a total of 22 restrictions or requirements. These were:

1. The mix must weigh exactly 2,000 lb.
2. It must have at least 320 lb. of crude protein.
3. It must have no more than 358 lb. of crude protein.
4. It must have at least 80 lb. of fat.
5. It must have at least 1,400 lb. of TDN.
6. It must have no more than 200 lb. of fiber.
7. It must consist of at least 63.4 bu. of material.
8. It must consist of no more than 73.6 bu. material.
9. It must contain no more than 300 lb. of standard bran.
10. It must contain no more than 300 lb. of standard midds.
11. It must contain no more than 500 lb. of standard midds. and standard bran combined.
12. It must contain no more than 460 lb. of gluten feed.
13. It must contain no more brewers dried grains than the mill chose to allocate to this feed from its limited supply of this ingredient. (For any particular date this restriction could be given a definite numerical value.)
14. It must contain no more rice bran than the mill chose to allocate to this feed from its limited supply.
15. It must contain no more than 220 lb. of molasses.
16. The model must permit the level of molasses to be set at any desired level of 220 lb. or less.
17. The mix must contain at least 60 lb. of corn distillers dried grains.
18. It must contain no more of corn distillers dried grains than the mill chose to allocate to this feed from its limited supply.
19. It must contain at least 100 lb. of ground oats.
20. It must contain at least 1,200 lb. of ingredients with "in-transit" privileges.
21. It must contain exactly 20 lb. of salt.
22. It must contain exactly 20 lb. of dicalcium phosphate.

The last two requirements were not represented in the model. The weight specification was changed to 1,960 lb. and the salt and minerals were added to complete the ton mix. This is not necessarily an exhaustive list of specifications for the feed, but only the specifications believed to be of relevance. For instance, there exists some upper limit upon the use of rice bran. However, the supply restriction on rice bran becomes effective before the restriction imposed by other considerations; thus, only the supply restriction is worked into the model.

SOLVING THE ORIGINAL MOD-

Pellet Cooling Problems?



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EL: Twenty-four real ingredients were considered in the original model. In addition there were in total 20 "artificial ingredients" and "disposal ingredients." Thus, the first tableau contained 880 cells, each with a "substitution coefficient." If you will recall how we solved the problem in the second article, you will appreciate that we had to displace one of the "artificial ingredients" from the solution, replace it with a real ingredient, then develop 880 new "substitution coefficients." This process was repeated until we had displaced all the "artificial ingredients" and most of the "disposal ingredients." To further add to the computational burden, the "simplex" procedure does not always choose the "correct" real ingredient for entry. For example, it may cause us to try an ingredient which we later find we do not want in the mix. (Even with this shortcoming, it is the best procedure so far devised.) So we can usually count on having to develop as many sets of 880 substitution coefficients as there are specifications represented in the model plus about one fourth the number of "artificial," "disposal," and real ingredients combined. Thus, in this problem, we would expect to develop 20 + (¼ × 44) or 31 sets of 880 substitution coefficients each in order to get a solution. This figures out to be 27,280 coefficients. Of course, we did this on an electronic computer, but even so, it takes time. Our computer, a home-made model named PENNSTAC, is about as fast as you could count on owning (at a cost of $250,000 up) for use on feed formulation and accounting problems. PENNSTAC takes about 40 minutes to solve this sized problem. Cost per solution, counting the necessary coding and tape preparation time would be about $50.

Unless you happen to be in an area where you can rent the services of one of the really large computers in the IBM-704 or Remington Rand "Univac" class—you are not likely to come off much better than this with a feed model of this size.

If this were the only alternative, it probably would still pay you to use this service. We understand that some computing service firms are setting up such models and solving them for satisfied customers. But, we approached the problem with a view toward cutting down the computational burden and thus the cost. To be real truthful about the matter, we began thinking about simplified models in connection with our farm management research work where we were having to meet the computer cost out of our research budgets. Again you may profit from publicly supported research even though it was initially conducted in a distantly related field.

THE SIMPLIFIED MODEL: Basically there are two ways to reduce the size of the model. We can reduce the number of rows by reducing the specifications handled within the model. This may automatically reduce the number of needed columns since fewer "artificial" and/or "disposal" type ingredients are required. In any event, we want to give close attention to the possibilities for handling specifications outside the linear programming model since this kind of change affects solution time most strongly.

We can also reduce the size of the model by eliminating columns. For example, we carried in the original set of possible ingredients some that would not have entered the mix even if their prices had been half what they actually were. There would be slight risk of loss of relevant information by omitting these items. There is a relatively simple procedure for computing the value of any excluded ingredient in substituting for any set of other ingredients. Thus, if the price of an excluded ingredient should fall drastically, you could check to see whether this item should be added to the model.

This discussion of eliminating rows and/or columns may be a bit abstract for those of you who are new at the game; so, let's review a little. Each specification we put into the model requires a row in the substitution table (or initial tableau). Each ingredient we consider, including all "artificial" ingredients and "disposal" ingredients, requires a column. The 20 specifications each required a row (2 of the 22 previously listed were not put in the model). Each of the 24 real ingredients and each of the 20 "artificial" or "disposal" ingredients required a column. Thus, we had a substitution table (or initial tableau) of 20 rows and 44 columns. (Actually, we had 24 rows and 63 columns, but explaining the purpose of the extra rows and columns is not essential to this discussion. You can look at the article referred to in reference (1) if you are interested.)

TABLE 1

C_j			—M	—M	—M	—70	—50	—55	—M	0	0
		P_o	P_1	P_2	P_3	P_4	P_5	P_6	P_7	P_8	P_9
—M	P_1	2000	1			2000	2000	2000	—1		
—M	P_2	320		1		880	172	240		—1	
—M	P_3	80			1	10	78	240			—1

Illustration

Let's make the problem still more concrete by giving a diminutive illustration. Assume we want a mix that—

(1) Weighs exactly 2,000 lb.

(2) Has at least 320 lb. of crude protein.

(3) Has at least 80 lb. of fat.

We are going to make this out of soybean meal, corn and rice bran. Our tableau would look something like Table 1.

You will recall that prices are given on the top row and left most column and that "—M" means a prohibitive high price. The P_o column describes our first "artificial" solu-

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TABLE 2

C_j			—M	—M	—70	—50	—55	—O	O
		P_0	P_1	P_2	P_4	P_5	P_6	P_7	P_8
—M	P_1	2000	1		2000	2000	2000	—1	
—M	P_2	320		1	880	172	240		—1

tion. It consists of 2,000 units of P_1, 320 units of P_2 and 80 units of P_3; where P_1 is an "ingredient" that has weight only, P_2 is "artificial" pure weightless protein and P_3 is "artificial" pure weightless fat. These three "ingredients" are represented by columns P_1, P_2 and P_3. Columns P_4, P_5 and P_6 represent soybean meal, corn and rice bran, respectively. P_7 is "negative weight," P_8 is "negative protein" and P_9 is "negative fat." (Or "weight disposal," "protein disposal" and "fat disposal," if you please.) These last three are put in to permit the mix to exceed the specified level of the characteristics. The numbers in the columns, of course, are the substitution coefficients for the ingredients represented by the columns in terms of the "ingredients" in solution.

Suppose the nutritionists tell us after we get our model set up that fat really isn't important after all. (We'll also suppose that the regulatory authorities and the customers believe the nutritionist.) We are now able to eliminate the specification for fat from our model. To do this we eliminate the "fat" row; that is, we eliminate the row occupied by "artificial fat" (P_3). But, we can do more than that. If we are not going to consider fat, obviously we won't need "artificial fat," thus we can eliminate column P_3 which represents this "ingredient." we can also eliminate P_9, or "negative fat" since there is no possibility of our running over the minimum specified level for fat since we have eliminated the specified level altogether. We can rewrite the reduced tableau as shown in Table 2.

This reduced model has 14 substitution coefficients instead of 27 in the model including fat. Normally we would reassign subscripts to the "P's" so they would be numbered consecutively from the left but we haven't done this here to help you keep track of what was eliminated.

TABLE 3

C_j			—70	—50	—55	—M	O
		P_0	P_4	P_5	P_6	P_7	P_8
—M	P_1	2000	2000	2000	2000	—1	
—M	P_2	320	880	172	240		—1

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Steps in Simplification

I trust this is enough of review of principles, so let's get on with the main discussion. We will try in this discussion to use our small illustrative model to "tie down" the description of the steps followed in the simplification of the realistic model.

Let us dispose of the column elimination procedures first and then return to the more important row eliminations. We can safely leave out all the "artificial ingredient" columns. The "ingredients" are present in the first trial solution to our mix but they are all to be displaced never to reenter. Thus, we have no use for the substitution coefficient for this type ingredient. (Perhaps, "no use" is a trifle strong. It may give us some idea of the value of a synthetic ingredient; as, for example, methionine or lysine in other mixes.)

With reference to our illustrative model, this means we can eliminate columns P_1 and P_2. That is the columns representing "artificial weight" and "artificial protein." The model will then look like Table 3.

We can also omit the columns that give the substitution coefficients for all "disposal" type ingredients that satisfy exact specifications in the initial trial solution. These "disposal" type ingredients will be forced from the solution never to return. Leaving them in will give us information upon how much could be saved, if any, by departing from an exact specification for a characteristic. We could, by leaving in the column related to "weight disposal," find out how much we could save, if anything, by meeting all other specifications with a mix weighing less than a ton. Generally, this information is of little practical value, however, since the mill cannot sell a lesser weight as a ton and the customer will not tolerate the use of filler even if it resulted in a lower actual feed cost to him.

In our illustrative model we have a "negative weight ingredient" column (or weight disposal) P_7. We can eliminate it without loss of useful information if we do not want to consider meeting the specifications with less than 2,000 lb. of weight. With it eliminated our tableau looks like Table 4.

Elimination of Rows

Now, let us consider the elimination of rows by referring back to the previously given statement of specifications. (We have gone through this procedure for eliminating rows in the small illustrative problem.) We cannot do without the specification for weight so this row is to remain. We will need, however, only one of the protein restrictions at any given time. It is obviously impossible for us to have a mix that would be both the upper and lower limit of the range permitted. In choosing which to hold and which to discard we made use of common knowledge that a higher protein mix usually costs more, other specifications being the same, than a lower protein mix. Thus, we discarded specification (3) in the previous list. Note that we could be wrong in doing this. If we are wrong, we will have to correct the model and re-run the problem or make adjustments in the solution to correct it. If we are right, we will save time and money. These two alternatives must be weighed each time we approach the question of leaving out a specification.

The minimum specifications for fat and TDN were found to be generally effective; thus, they were retained. The specification for fiber was dropped, however, since it would be a very rare occurrence for the fiber to exceed 10% using the ingredients we did and meeting the other specifications. Your situation could be quite different in this regard. In any event, you will want to consider your own mix and the ingredients you use in choosing which specifications to drop.

Bulk, or bushels per ton, was found to be subject to considerable variation. Thus, specification for both the upper and lower limits on bulk were retained.

Standard middlings and standard bran always entered the solution at the joint maximum of 500 lb. Thus, we assumed that we would always add 300 lb. of bran and 200 lb. of middlings. This became part of what we termed a "premix." This is probably an unfortunate choice of word since you have a somewhat different concept of a "premix," but we cannot come up with a substitute that is better.

Obviously, if we are wrong in our assumptions in this case we must correct the formula. We will postpone further discussion of the correction procedures, however, until we have completed the description of the simplified model.

We also added to the "premix" the minimum level of oats and of corn distillers dried grains. This permitted us to drop the two rows needed to represent these restrictions in the model.

Molasses was also added to the "premix" at the level of 220 lb. Actually molasses was not free to vary in the earlier model in response to price alone. The mill preferred to hold at a given level until cost of the mix was sharply increased. Then they would move to another "fixed" level until prices changed drastically again. In using the simplified model we planned to change the level of molasses in the premix to yield the desired control.

Salt and dicalcium were added at the required amounts to the "premix."

We simply ignored all the other specifications as far as the model was concerned. This gave us a very simple six-row model contrasted to the previous twenty-row model. We "normalized" this model on weight and thus eliminated another row.

We needed columns for five "disposal" type ingredients, no "artificial" ingredients, and only 12 real ingredients. The model was thus reduced to five rows and seventeen columns. It has 85 cells—less than 10% of the original model.

SOLUTION OF THE SIMPLIFIED MODEL: The simplified model is well within the range of solution by hand calculations if you have plenty of time between final setting of prices and the decision upon formula. This does not seem to be a very common occurrence in mills, however.

On PENNSTAC this size problem solves in about two minutes of computing time. The total cost of coding, tape preparation, and computing is about $5. This is just about 10% of the cost of the larger model. But, this is not a fair comparison because we do not get as good an answer. We made several assumptions in moving from the original to the simplified model. If any one of these assump-

TABLE 4

C_j			—70	—50	—55	O
		P_0	P_4	P_5	P_6	P_8
—M	P_1	2000	2000	2000	2000	
—M	P_2	320	880	172	240	—1

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tions fails to hold, we have some more computing to do. Now, we can do this by hand, and usually in less than the difference in time it takes the computer to solve the two models. The details of the required type of adjustment are given in one of the references (2). As indicated earlier, we can change the model to reflect more accurate assumptions and resolve the modified model. Better still, the solution routine used by the computer can be modified to "correct" the model when it senses that an assumption has been violated (3).

MULTIPLE MIX MODELS: All dairy feeds have a basic similarity. They vary considerably in protein level, but all have a protein specification. And, so it is with other characteristics — the magnitude of the characteristic may change from feed to feed but the characteristics are present. This raises the possibility of using the same basic model for several feeds of the same type. When the solution to one feed is obtained the answer is read out, the computer changes the model as previously instructed, and proceeds to a solution of the next feed. This process can be continued until all feeds of basic similarity have been formulated. Actually the feeds do not have to be very much alike so long as the model contains the required characteristics of all the feeds. Some of the feeds may have some of a characteristic at zero level and no feed need have all the characteristics at non-zero level in order for this scheme to work.

This has two advantages. First "read-in" time is reduced. Rather than reading in the models for say 10 feeds, you read in one model only slightly larger than any one of the ten. The second advantage is in computation time. The computer need not be programmed to start with the "first tableau" of the model when it begins a new feed. The solution to a 16% dairy feed is a much closer approximation to the solution to a 14% dairy feed than is the "artificial" solution of the "first tableau." Thus, the computer can be programmed to start where it is and proceed to the solution of the next mix.

The saving to be realized by this procedure is hard to estimate because so much depends upon the differences between feeds being solved by the same model. Limited experience on PENNSTAC indicates that time per formula may be cut to about one-half of that required by separate models.

NEW SOLUTIONS TO REFLECT CHANGE IN PRICE ONLY: If none of the elements of the model changes except price, a solution obtained for one set of prices is almost always a much better approximation of a solution to the new set of prices than the "first tableau." Thus a saving in computation time can be made by using the substitution coefficients for the solution to the problem under the old set of prices for the beginning point for the new set.

CONCLUSION: We had better stop here before we create the impression that there really is not a computational burden in solving these problems. There is a considerable burden even under the best of conditions. Our objective in this article is that of indicating that it makes quite a bit of difference in computing time depending upon the nature of the model you use and the solution routine you follow. Unfortunately some computer service salesmen may not yet be able to set up the simpler models. If you shop around for computer service, you stand a better chance of getting efficient service.

In the next article of this series we will discuss a procedure that you may be able to use in formulating feeds without the continuing use of an electronic computer.

v v

References and Notes

(1) The original model appeared in "A Linear Programming Model for Feed Formula Development Under Mill Operating Conditions" in the Journal of Farm Economics of February, 1957. A simplified version of this model appeared in "A Simplified Feed Mix Model" in the same journal of August, 1957. Further simplifications have been developed since that article appeared, and these are referred to in this current article.

(2) The adjustments required to correct for slight model errors are detailed in the article "A Simplified Feed Mix Model" referred to above.

(3) A method of programming a computer to correct for model "error" is suggested in a note entitled "Modification of Linear Programming Solution Routine to Permit Consideration of Conditional Restrictions" to appear in the November, 1958, issue of the Journal of Farm Economics. A flow diagram of the process has been developed by the author.

New General Manager

DES MOINES—Don Brackett, Waterloo, Iowa, has been announced as the new general manager of the Mahaska Industries, Inc., plant in Oskaloosa. P. J. Geerlings of Waterloo is president. The Oskaloosa plant is starting manufacture of a new birth-to-market canopy feeder and a new "barrel" feeder. The birth-to-market feeder, said to be the first of its kind on the market, allows the feeding of baby pigs, growing pigs and fattening hogs instead of just baby pigs. The other product is a feeder base only, with the farmer furnishing the barrel. It will replace the drum part of the regular assembled feeders. Mr. Brackett was associated with Mr. Geerlings in designing the new products while he was general maintenance supervisor for Rath Packing Co., Waterloo. Mahaska Industries, Inc., was established a year ago.

BUYS FEED MILL

CAMBRIDGE, MINN. — Joe Schmitt, Cambridge, owner of the General Feed Mill here, announced that he has purchased the Stanchfield (Minn.) Mill & Feed. Through the expansion, Mr. Schmitt said he plans to enlarge his services, including the handling of bulk feeds.

stacks solidly! easier to grip!

Thousands of tiny interlocking grooves are pressed into the tough kraft outer-wall of the new Cromwell STAK-GRIP bag . . . by an embossing process originated by Cromwell. Result: *built-in* two-way slip-resistance with no reduction in strength!

In over three years of actual use, the Cromwell STAK-GRIP bag has proved these outstanding advantages:

1. **cuts breakage losses** due to slippage.
2. **increases safety** because bags stack solidly.
3. **helps sales** because both dealers and farmers like the flexible, easy-to-handle surface and the extra-brilliant printing.

brightest, strongest printing you've ever seen on a multi-wall bag!

Printing before embossing gives a 3-dimensional effect to the printing, adds amazing brilliance and intensity, and puts a real merchandising wallop behind your brand.

For a free sample and complete information, write on your business letterhead to Mr. O. N. Johnson.

for the latest and best in feed bags

stop bag slippage with CROMWELL STAK-GRIP® bags

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4801 South Whipple Street
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Over 54 Years of Dependable Brokerage Service
Established 1904
EDWARD E. SMITH AND CO.
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AA Arbor Acres
Make sure
Your broilers come from
ARBOR ACRES females!

1. Physiological stresses—rapid growth, accelerated egg production, extreme temperature changes—are economically important in the poultry industry, according to several authorities.*

2. A nutritionally complete diet helps birds thrive under physiological stress.

3. Vitamin E has been recognized as an essential part of a nutritionally complete diet for chickens.

4. But the vitamin E content of the ingredients in modern poultry feeds is subject to wide variations.

5. So feed manufacturers assure themselves against a vitamin E deficiency in their products by using a vitamin E supplement.

*Literature reference on request

The supplement to use is *Myvamix® Vitamin E Feed Supplement.* It has 20,000 International Units of Vitamin E per pound on a soy grit base. The vitamin is in the form of *d*-alpha-tocopheryl acetate which makes it stable against heat, long storage, and the influence of other feed ingredients. It's the form that is the most potent biologically, too. The cost is only a few dimes per ton of feed. You get a quotation and more information from ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • Charles Albert Smith Limited, Montreal and Toronto.

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Vitamin E

DPi

Also . . . vitamin A . . . distilled monoglycerides
. . . some 3700 Eastman Organic Chemicals
for science and industry

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is a division of **Eastman Kodak Company**

CONVENTION CALENDAR

Oct. 20-21—California Animal Industry Conference, Fresno Memorial Auditorium, Fresno, Cal.; sponsored by University of California and California Hay, Grain & Feed Dealers Assn.; sec., John Gilmore, 1400 10th St., Sacramento, Cal.

Oct. 23-24—First Annual Poultrymen's Institute; State College of Washington, Pullman, Wash.

Oct. 23-24 — West Virginia Feed Dealers Assn.; Blackwater Falls Lodge, Davis, W. Va.; sec., J. S. Larrick, 408 Prince St., Beckley, W. Va.

Oct. 23-24 — Iowa Seed Dealers Assn.; Hotel Fort Des Moines, Des Moines, Iowa; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines, Iowa.

Oct. 23-25 — Nutrition Conference, Alabama Feed Assn.; Alabama Polytechnic Institute, Auburn, Ala.; chm., Merlin T. Bryant, Brundidge Milling Co., North Main St., Brundidge, Ala.

Oct. 24 — Arkansas Poultry Study Day; University of Arkansas Agricultural Experiment Station, Fayetteville, Ark.; chm., R. M. Smith, Poultry Department.

Oct. 28—Iowa Sheep Day; Iowa State College, Ames; chm., Emmit Haynes, Animal Husbandry Dept., Iowa State College.

Oct. 30—Nebraska Formula Feed Conference; University of Nebraska, Lincoln, Neb.; chm., Dr. J. L. Adams, Poultry Husbandry Dept.

Oct. 31 — Nebraska Rooters Day; University of Nebraska, Lincoln, Neb.; Dept. of Animal Husbandry.

Oct. 31—Illinois Sheep Day; University of Illinois, Urbana; chm., Dr. George R. Johnson, Department of Animal Science.

Oct. 31-Nov. 3 — Florida Nutrition Conference; cruise from Miami to Nassau, British West Indies; chm., J. P. Feaster, Department of Animal Husbandry and Nutrition, University of Florida, Gainesville, Fla.

Nov. 2-5 — National Renderers Assn., Hotel Statler, Washington, D.C.; sec., Miss Jamie C. Fox, 30 N. LaSalle St., Chicago 2, Ill.

Nov. 3-4 — National Swine Industry Conference; Purdue University, Lafayette, Ind.; chm. Keith E. Myers, P.O. Box 241, Grundy Center, Iowa.

Nov. 5—North Dakota Swine Day; Shepperd Arena, North Dakota Agricultural College, Fargo, N.D.

Nov. 5—Jersey Chick Assn.; Berkeley-Carteret Hotel, Asbury Park, N.J.; sec., J. C. Taylor, College of Agriculture, New Brunswick, N.J.

Nov. 5-6—Illinois Feed Assn. and Illinois Poultry Improvement Assn.; Armory, Springfield, Ill. (IFA Leland Hotel; sec., Dean M. Clark, Board of Trade, Chicago 4; IPIA, St. Nicholas Hotel; sec., Aubrey Harless, Box 91, Shelbyville, Ill.)

Nov. 7—Illinois Cattle Feeders Day; University of Illinois, Urbana; chm., Dr. George R. Johnson, Department of Animal Science.

Nov. 7 — Washington Animal Industry Conference; Lower Columbia Junior College, Longview, Wash.; sponsored by State College of Washington, Lower Columbia Junior College and Washington State Feed Assn.; assn. mgr., J. G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Nov. 12-14 — Feed Production School; American Royal Bldg., Kansas City; sponsored by Midwest Feed Manufacturers Assn.; executive vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

dent, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Nov. 13-14—Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Prof. Charles Chance, Wing Hall, Cornell University, Ithaca, N.Y.

Nov. 14—Small Mill Short Course; American Royal Bldg., Kansas City; sponsored by Midwest Feed Manufacturers Assn., executive vice presi-

Nov. 15—Missouri Sheep Day; Uni-

CALENDAR FOR 1958-59

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USE OF FATS IN FEED IS GROWING

...ittee ... with the Allied Industry Associa... ...mittee regarding the tentative purchasing guides under consideration. With their approval, the following purchasing guides were accepted:

ANIMAL FAT PURCHASING GUIDE

Prepared by the Nutrition Council of the American Feed Manufacturers Association.

Foreword: This purchasing guide is presented to supply a uniform basis for the preparation of the procurement specifications by each purchasing agent. Since conditions and requirements vary greatly in different areas, this guide is not intended to be rigidly followed. Quality limitations may not always be optimal. The purchasing guides will be revised as improved methods of judging quality are available.

Definition: (Reference.— Official Publication of the Association of American Feed Control Officials.)
Animal fat is a mixture of fats of a quality suitable for feeding obtained from animal tissues in the commercial processes of rendering. If the product bears a name descriptive of its kind or origin as for example, "lard," "tallow," "beef fat," it must correspond thereto.

Analysis: (Basis American Oil Chemists' Society, current edition unless specified.)

1. Stability: AOM Test (Active Oxygen Method)
20 hours AOM stability is the minimum acceptable and is approximately equivalent to 320 days of storage life.
2. Purity: M.I.U. (Moisture, Impurities, Unsaponifiables)
The M.I.U. is basis 2% unless otherwise specified. Excessive moisture causes rapid deterioration and must be kept out of animal fat. Higher percentages of impurities proportionately reduce caloric values.
3. Antioxidant:
Only approved antioxidants shall be used, and in sufficient quantity to meet minimum stability requirements.
4. Free Fatty Acid: (FFA)
Free fatty acid varies but for feeding purposes, animal fats having a free fatty acid not exceeding 15% are usually selected.

Physical Properties:

1. Color:
Color is an indication of grade, but has little or no effect on feeding quality.
2. Titer: (Approximate Melting Point)
Titer is the solidification point of the fatty acids measured in degrees centigrade. Fat having a titer of 40° C. and above is called tallow. Fat having a titer below 40° C. is called grease.

Tenox

Eastman antioxidants for animal fats

Make sure the fats you buy meet new AFMA "specs" on stability. Insist on Tenox-stabilized fats for your feed.

With more and more feed manufacturers recognizing the nutritional advantage of incorporating animal fats in their feed, consumption of these fats is growing rapidly. But with this increased consumption, there also has grown the necessity for consistently obtaining fats of adequate stability.

Recognizing this problem, the American Feed Manufacturers Association has suggested new standards of quality to guide purchasing agents in buying stabilized animal fats.

By these new standards, the *minimum* acceptable fat stability is set at 20 hours by AOM test. The trend among leading renderers, however, is to produce a 40 hour AOM fat. By so doing, these renderers provide maximum assurance the fats they sell will have sufficient stability, even under adverse conditions.

Not all antioxidants can provide even 20 hour stability under all conditions. And, with the wide variety of inedible fats and meat scraps being processed today, it is to your advantage to make sure the fats you buy are protected by the proper antioxidant.

Tenox antioxidants give you the safeguard you need.

In the first place, the Eastman line of Tenox antioxidants offers the renderer the widest choice available. From this broad range he can consider and select the antioxidant or antioxidant formulation best suited to the particular fat he is handling and to his processing conditions.

Secondly, Eastman is well-qualified to suggest not only the most effective antioxidant formulation, but also the most efficient method of adding it. This is because Eastman has years of experience in the manufacture and use of antioxidants, and in evaluating their performance. Eastman makes all the major types of antioxidants—has no axe to grind in favor of any one.

So insist that your renderer supply fats stabilized with Tenox antioxidants, backed by Eastman technical service. It's your best assurance the feeds you sell will have long-lasting protection against rancidity. EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

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It will save money for you!
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versity of Missouri, Columbia; chm., C. V. Ross, Animal Husbandry Dept.

Nov. 20—Ohio Grain, Feed & Farm Supply Marketing Conference; Ohio State University, Columbus; chm., Dr. John Sharp, Department of Agricultural Economics.

Nov. 21—Rutgers School for Poultry Servicemen; Rutgers University, Brunswick, N.J.; chm., John Bezpa, Extension Specialist in Poultry Husbandry.

Nov. 23-25—Western Grain & Feed Assn.; Hotel Fort Des Moines, Des Moines, Iowa; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines, Iowa.

Nov. 28-29—American Society of Animal Production; Hotel Sherman, Chicago, Ill.; sec., H. H. Stonaker, Animal Husbandry Dept., Colorado State University, Fort Collins, Colo.

Nov. 30-Dec. 1 — Tennessee Feed Manufacturers Assn.; Noel Hotel, Nashville, Tenn.; sec., Charles H. Warfield, 602 American Trust Bldg., Nashville 3, Tenn.

Dec. 8-9 — Veterinarian-Nutrition Conference; President Hotel, Kansas City; sponsored by Midwest Feed Manufacturers Assn.; exec. vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City, Mo.

1959

Jan. 5-6 — Kansas Formula Feed Conference; Kansas State College, Manhattan, Kansas; chm., Dr. Tom Avery, Poultry Department.

Jan. 6-7—Elevator Business Managers Clinic, Michigan State University, Kellogg Center, East Lansing, Mich.; chm., Earl H. Brown.

Jan. 6-8—National Turkey Federation Convention and Exposition; Veterans Auditorium, Des Moines, Iowa; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 9-10 — Kansas Seed Dealers Assn.; Hotel Broadview, Wichita; sec., O. E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

Jan. 11-13—Northwest Retail Feed Assn.; Hotel Pick-Nicollet, Minneapolis; sec., W. D. Fleming, 112 Grain Exchange Bldg., Minneapolis, Minn.

Jan. 18-20—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis 4, Ind.

Jan. 20-21—North Dakota Poultry Industries Convention; Elks Club, Fargo, N.D.; chm., B. J. Duke, North Dakota Poultry Improvement Board, Bismarck, N.D.

Jan. 26-28 — Southeastern Poultry & Egg Assn., Atlanta, Ga.; sec., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Jan. 28-30—American Dehydrators Assn., Shamrock-Hilton Hotel, Houston; exec. vice pres., Joseph Chrisman, Board of Trade Bldg., Kansas City 5, Mo.

Jan. 29-30—Oregon Animal Industry Conference; Oregon State College, Corvallis; sponsored by Oregon State College and Oregon Feed & Seed Dealers Assn.; sec., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Feb. 6-7—Minnesota Turkey Growers Assn.; Leamington Hotel, Minneapolis; sec., A. E. Eisenmenger, 2200 University Ave., St. Paul, Minn.

Feb. 9-10—Montana Nutrition Conference; Montana State College, Bozeman, Mont.; chm., Dr. O. O. Thomas, Animal Industry Dept.

Feb. 11-12 — Feed Mill Production School; Leopold Hotel, Bellingham, Wash.; sponsored by Washington State Feed Assn.; mgr., J. G. Wilson, 814 Second Avenue Bldg., Seattle, Wash.

Feb. 12-13 — Washington State Feed Assn.; Leopold Hotel, Bellingham; mgr., J. G. Wilson, 814 Second Avenue Bldg., Seattle, Wash.

Feb. 13-15—Institute of American Poultry Industries' Fact Finding Conference; Municipal Auditorium, Kansas City, Mo.; Institute of American Poultry Industries, 59 E. Madison, Chicago 2, Ill.

Feb. 16-18—Midwest Feed Manufacturers Assn., annual convention, Muehlebach Hotel, Kansas City, executive vice president, Lloyd Larson, 20 West Ninth St., Kansas City, Mo.

Feb. 22-24—Colorado Grain, Mill & Feed Dealers Assn.; Shirley Savoy Hotel, Denver, Colo.; sec., Olaf Erickson, 714 Cooper Bldg., Denver 2, Colo.

Feb. 23-26 — Colorado Livestock Days; Colorado State University, Ft. Collins, Colo.; chm., Dr. Lamar Esplin.

Feb. 24-25—Virginia Feed and Nutrition Conference; Hotel Roanoke, Roanoke, Va.; co-chm., Wm. G. Ritchie, J. S. Ritchie & Sons, Petersburg, Va., and Paul M. Reaves, professor Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

March 1-3 — Ohio Grain & Feed Dealers Assn., Inc.; Neil House, Columbus, Ohio; sec., G. E. O'Brien, 710 N. Ohio Street, Greenville, Ohio.

March 19-20—Oregon Feed & Seed Dealers Association; Multnomah Hotel, Portland; sec., Russ Hays, 702 Lewis Bldg., Portland 4, Ore.

March 19-20—Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm., Dr. Richard D. Creek, Poultry Husbandry Department, University of Maryland, College Park, Md.

March 25—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati 2, Ohio.

April 12-17—Grain Elevator & Processing Superintendents; Multnomah Hotel, Portland, Ore.; sec., Dean M. Clark, 1120 Board of Trade Bldg., Chicago 4, Ill.

April 30-May 2—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita, Kansas; sec., O. E. Case, 901 Wiley Bldg., Hutchinson, Kansas.

May 8-10 — Grain Processing Machinery Manufacturers Assn.; Chicago; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

May 11-13—American Feed Manufacturers Assn. Convention and National Feed Industry Show; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 15-16—Missouri Grain, Feed & Seed Assn.; Hotel Governor, Jefferson City, Mo.; sec., D. A. Meinershagen, Higginsville, Mo.

June 7-9—Indiana Grain & Feed Dealers Association; Sheraton Hotel, French Lick, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis, Ind.

June 7-9 — Eastern Federation of Feed Merchants, Pocano Manor Inn, Pocano Manor, Pa.; sec., Austin W. Carpenter, Sherburne, N.Y.

July 10-14 — Georgia Feed Assn.; General Oglethorpe Hotel, Savannah, Ga.; sec., Will L. Kinard, 3240 Peachtree Rd. Bldg., Atlanta 5, Ga.

Sept. 13-14—Grain and Feed Dealers National Assn. (work meeting for directors, committees and members), Minneapolis; exec. v. pres., Alvin E. Oliver, 400 Folger Bldg., Washington 5, D.C.

G.L.F. Supplies Eggs To 70 Nu-Way Stores

ITHACA, N.Y. — The Cooperative G.L.F. Exchange, Inc., Ithaca, has been named exclusive supplier of eggs for the 70 Nu-Way markets in western New York, according to an announcement in a recent issue of G.L.F. Week, publication of the cooperative.

Hugh Campbell, sales manager of the egg marketing division, made the announcement. He said Nu-Way is a division of American Stores Co.

The eggs will be produced on farms in western New York, graded and candled at the Buffalo G.L.F. egg marketing service and delivered fresh in G.L.F. trucks to the Nu-Way markets.

Mr. Campbell said the Nu-Way chain is growing in size and number of stores. "G.L.F. can look forward to increased volume through these new outlets," he said.

G.L.F. is supplying more than 200 markets of the American Stores Co. with locally produced eggs in New York state, New Jersey and Pennsylvania.

PANEL OF EXPERTS—A "stump the experts" panel session was one of the highlights of the recent University of Maryland Poultry Service Men's Conference held at College Park. The session was recorded and will be available later as a supplement to the conference proceedings. It was moderated by Charles F. Schuck, conference advisory board chairman, and Allen M. Bradley, Maryland State Poultry Council president. Both are with the Bradley Hatchery, Easton, Md. A poll of those attending the session indicated that inclusion of dairy, swine and beef industry problems in future conference programs is favored by a majority of the service men. Panel members shown (left to right) are: Dr. Boyd L. Stock, Millsboro (Del.) Poultry Laboratories; Dr. H. M. DeVolt, Maryland Livestock Sanitary Service Laboratory, College Park; Dr. J. E. Foster, head of the animal husbandry department, University of Maryland; Dr. E. R. Young, animal husbandry department; Dr. N. V. Helbacka, poultry department; Mr. Schuck; Mr. Bradley, and Dr. I. M. Moulthrop, Livestock Sanitary Service Laboratory, Salisbury, Md.

F. K. Thayer Honored

CHICAGO—Floyd K. Thayer was recently named "Marketing Man of the Year" for the Chicago area by the Chicago chapter of the American Marketing Assn. He is vice president and director of chemical sales for Abbott Laboratories, North Chicago.

Mr. Thayer was chosen from among marketing men in the metropolitan Chicago area by the chapter's award committee, composed of six Chicago industrial leaders. He has been with Abbott since 1920.

This is a money machine

MAKING MONEY FOR YOU

It's a fact! This modern mixing machine *does* help you make money, because it is typical of the modern equipment Wilson uses to assure the uniform high quality of Red W Brand Protein concentrates and Red W Brand Vitagen Feeding Fat. This means you know exactly what you're adding when you put these fine products to work for you.

And your customers know about this dependability, too. It keeps them coming to you for feeds—year after year. Because your high energy feeds are better with Wilson Red W Brand, you'll be able to count on profitable repeat business!

WILSON'S RED W BRAND

Animal Protein Concentrates and Vitagen Feeding Fat

The BEST Ingredients Make BETTER Feeds

RED W BRAND 50% Meat & Bone Scraps
RED W BRAND 60% Digester Tankage
RED W BRAND Special Prepared Bone Meal (70% Bone Phosphate of Lime—Min.)
RED W BRAND Vitagen Feeding Fat

Write or telephone for quotations on any quantity you need!

WILSON & CO., INC. CHICAGO • CEDAR RAPIDS • KANSAS CITY • OKLAHOMA CITY
OMAHA • LOS ANGELES • DENVER • ALBERT LEA • MEMPHIS

How you can save on vitamin A costs by buying according to...

stability of vitamin A sources

Different sources of vitamin A—fish liver oils, other vitamin A oils, products where the vitamin is absorbed on cereal carriers or stabilized with wax, animal fat or vegetable gum—vary greatly in their stability characteristics in different types of feeds and under different storage and use conditions.

Here are facts that show Pfizer Vitamin A Palmitate in Gelatin's superior stability in feeds of all types under a wide range of conditions helps make it the lowest cost source of vitamin A activity when *true cost* is considered—the cost of the vitamin A you *put into your feeds.*

The most drastic test of vitamin A stability is storage with minerals.

A one-year test was undertaken by a well-known Midwestern feed manufacturer in Feb., 1956, to determine stability of four leading vitamin A products in a swine mineral supplement.

The mineral supplement had a claimed potency of 50,000 U.S.P. units vitamin A per pound and contained the minerals calcium, phosphorus, salt, iodine, iron, manganese, copper, cobalt, zinc, and magnesium.

To obtain unbiased reports, the company relied on assays of three supplier laboratories, an independent lab and the manufacturer's own lab. The mineral supplement was stored in 50-lb. multiwall paper bags under normal storage conditions. Simultaneous assays were made by the five labs in Feb., July, and Nov., 1956, and at the close of the test in Feb., 1957.

Rankings of the vitamin products were averaged in final tabulations to determine the stability rank of each vitamin A tested. These rankings, based upon average 12-month retention were:

Rank	Product	All lab. average
1	Pfizer Vitamin A Palmitate in Gelatin	94%
2	Product B	83%
3	Product C	75%
4	Product D	67%

Pelleting another critical problem

In commercial pelleting heat, pressure, moisture, trace minerals, and exposure to air combine to destroy vitamin A. Potency losses of 10% to 30% are not uncommon. Research indicates factors such as degree of steaming, exit temperature of pellets, nature of ration, pellet size, amount of fines formed which require recycling and type of mineral salts also influence stability. Add the loss that often occurs when pellets are stored and you see the magnitude of the stability problem in pelleted feeds.

Pfizer Vitamin A Palmitate in Gelatin has retained over 95% of initial potency after steam pelleting and thirty days storage in pellets with a high-moisture content.

Assays have shown no loss of potency due to cubing process in making cubes.

Excellent stability in high-moisture feeds

Pfizer Vitamin A Palmitate in Gelatin has retained 95% of initial potency after six weeks in mixed feed (12.8% moisture) under accelerated conditions. It shows high stability in extremes of temperature and humidity where many competitive products lose 30% to 40% in two weeks under the same conditions. Fish liver oils lose 60% to 70%.

Stability in storage

Pfizer Vitamin A Palmitate in Gelatin has shown no appreciable loss in three months of shelf storage. Many competitive products lose 5%-12% initial potency.

Stability *plus* availability needed for best results

Some feeds are marketed under conditions where stability of the vitamin A is not a critical factor. For example, bulk shipments in truck and carload lots to a feedlot or farm where the feed is used almost immediately.

However, biological availability is still important. If the animal or bird can't utilize all of the vitamin A in the feed, various vitamin A deficiency disorders could cause trouble.

Ask your Pfizer representative for facts that show Pfizer Vitamin A Palmitate in Gelatin has greater biological availability than fish liver oils, other vitamin A oils, products where the vitamin is absorbed on cereal carriers or stabilized with wax, animal fat or vegetable gum.

Pfizer Vitamin A Palmitate in Gelatin's greater biological availability—its superior stability in feeds of all types—makes it the lowest cost source of vitamin A activity when *true cost* is considered . . . the cost of vitamin A *put into feeds*, the cost of vitamin A *utilized* by the bird or animal.

Ask your Pfizer representative to prove it.

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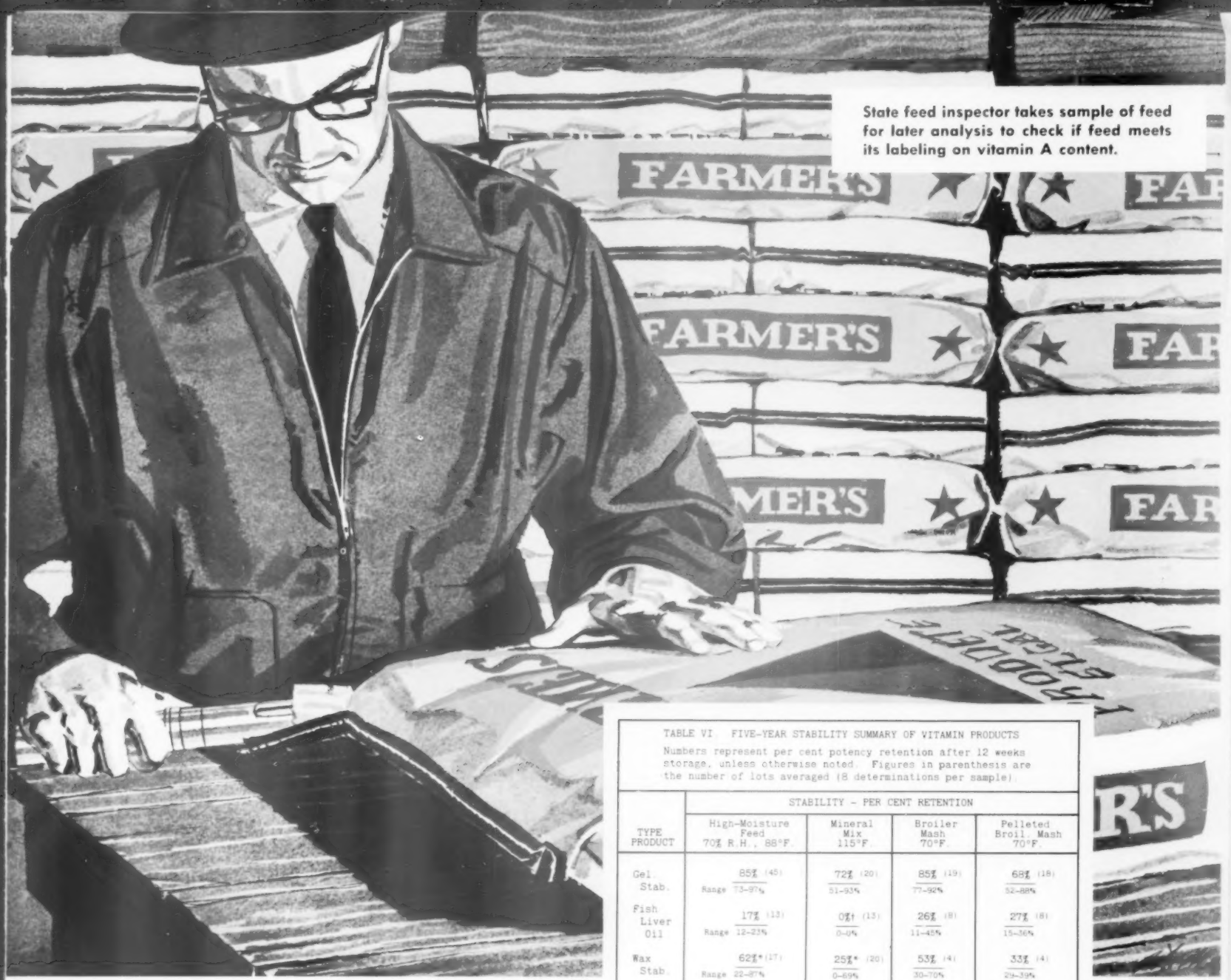


State feed inspector takes sample of feed for later analysis to check if feed meets its labeling on vitamin A content.

TABLE VI. FIVE-YEAR STABILITY SUMMARY OF VITAMIN PRODUCTS

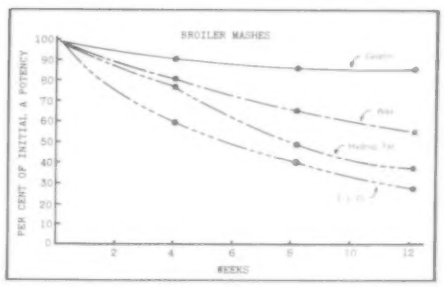
Numbers represent per cent potency retention after 12 weeks storage, unless otherwise noted. Figures in parenthesis are the number of lots averaged (8 determinations per sample).

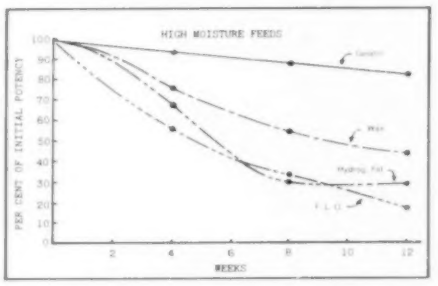
TYPE PRODUCT	STABILITY – PER CENT RETENTION			
	High-Moisture Feed 70% R.H., 88°F.	Mineral Mix 115°F.	Broiler Mash 70°F.	Pelleted Broil. Mash 70°F.
Gel. Stab.	85% (45) Range 73-97%	72% (20) 51-93%	85% (19) 77-92%	68% (18) 52-88%
Fish Liver Oil	17% (13) Range 12-23%	0%† (13) 0-0%	26% (8) 11-45%	27% (8) 15-36%
Wax Stab.	62%* (17) Range 22-87%	25%* (20) 0-69%	53% (4) 30-70%	33% (4) 29-39%
Fat Stab.	27% (6) Range 19-56%	10%ø (6) 0-14%	37% (2) 33-38%	35% (2) 33-37%

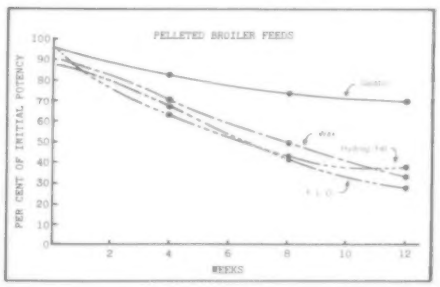
† 2-week data. ø 6-week data. * 8-week data.

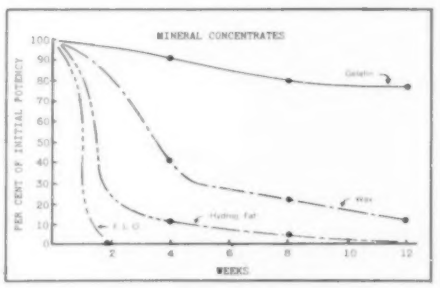
Only Pfizer's Vitamin A Palmitate in Gelatin gives you all these important advantages:

- **Outstanding stability in pelleting and pelleted feeds, mineral mixes, concentrates, high-moisture feeds.**
- **Greater bio-availability, unit for unit, than fish liver oils, other vitamin A oils, products where the vitamin is absorbed on cereal carriers or stabilized with wax, animal fat or vegetable gum.**
- **Controlled-size, dry, free-flowing beadlets assure uniform distribution in feeds. No oil to heat, no spraying, no clogging.**
- **99 plus percent pure vitamin A; no impurities to accelerate "A" loss; assay by USP and colorimetric methods gives essentially same potency.**









Palmitate in Gelatin

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ST. REGIS OPEN HOUSE—St. Regis Paper Co. recently was host at a buffet luncheon and tour of its modernized Kansas City multiwall bag plant. Among those who visited the new stepped-end multiwall department at the plant were, from the left: V. C. Douglas, St. Regis vice president from Chicago; Leo Michaelis and Glenn Jenkins, International Milling Co., Kansas City, and Frank Rendler, St. Regis sales manager, Kansas City branch. At the luncheon Frank W. Myers, Chicago, midwestern district manager of the multiwall packaging division, explained St. Regis' growth in the Midwest as a major producer of packaging materials and equipment for a broad range of agricultural and industrial markets.

St. Regis Expands Kansas City Plant

NEW YORK—St. Regis Paper Co. recently celebrated the expansion and modernization of its multiwall bag plant at Kansas City with an open house. Opened in June of 1956, the plant was equipped originally only to manufacture sewn multiwalls. Now, with a new stepped-end machine and expansion in the engraving, printing, sewing and shipping departments, St. Regis can manufacture pasted open mouth and valve bags, plus the new stepped-end bags.

The new machine, considered one of the most modern in the industry, was designed and built to make St. Regis' stepped-end bags in a wide variety of sizes for the individual needs of many different multiwall customers in such industries as flour, feed and fertilizer.

The stepped-end bag pioneered by St. Regis has an overlapping ply construction for added strength and flexibility. A more positive closure also provides increased siftproofness.

In addition to the stepped-end bag machine, St. Regis installed new engraving, printing and sewing equipment. A new printing press has been added to the plant's printing facilities and an older one has been modernized. A new vulcanizing machine for making the plates for printing the multiwall bags has been added in the engraving department.

The latest St. Regis valving and sewing equipment has been installed, replacing the original equipment.

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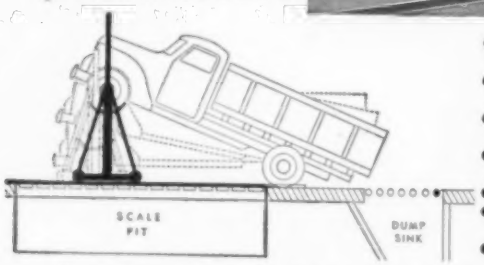
The low cost answer to your truck hoist problems.....



- *Requires no superstructure to support hoist plus load.*
- *Installs easily on average driveway. No millright required.*
- *Does not interfere with present overhead or under floor facilities.*
- *Requires no pit for hydraulic cylinder.*
- *Requires as little as a 2 HP motor.*
- *Unit travels on track clearing scale deck.*
- *Low cost lift, low cost installation.*

Fords truck lifts use the light farm hoist principle, but are of heavy duty construction for commercial use. The entire lift assembly is mounted on a carrier that travels on tracks fastened to the driveway floor, clearing the truck scales for fast, convenient positioning of the truck at dump sink.

One powerful cylinder does all the work. The lifting action can be stopped, started, raised, or lowered, and the direction reversed from any position, simply by moving the control valve. "Free Rolling" feature automatically centers hoist under front wheels. Incorporates all important safety features. *Write today for complete information!*

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Texas Economist Notes Forces Behind Contracting

COLLEGE STATION, TEXAS — There are important forces in the current development toward the concentration of management control at various points in the chain of production, slaughter and distribution of beef, declared Prof. A. C. Magee, agricultural economics and sociology department, Texas A&M College.

Prof. Magee noted that greater production and specialization lead to greater market risks which in turn necessitate closer tie-ups between producers and retailers. This leads to specification buying and specification production.

Some of the forces which Prof. Magee feels are part of the control concentration process for beef include:

1. Efforts of slaughterers and distributors to assure themselves of an adequate and stable supply of livestock or meat therefrom.

2. Efforts of slaughterers and distributors to control the quality of livestock and meat.

3. Efforts of farmers and ranchers to reduce risks and production costs.

4. Efforts of farmers and ranchers to improve prices and create new markets.

5. Efforts of farmers and ranchers to obtain additional production capital.

6. Efforts of feed companies and other farm suppliers to expand the market for their supplies.

7. Efforts of slaughterers and distributors to reduce dependence on others.

8. Efforts of slaughterers and distributors to reduce costs.

9. Efforts of individual firms to become larger in order to have economies of scale, increased market power, etc.

These efforts have brought about various adjustments, says Prof. Magee. Some cattle feeding has shifted from Corn Belt feed lots to the West and South. Western states account for more than a fourth of fed cattle marketings. The Corn Belt is still the major feeding area, but growth rates have been greater outside the Corn Belt. For example, an Arizona feeder has a crew of 17 men and feeds up to 35,000 head of cattle at one time. His lots are full yearround. On a contract basis, he will work for a relatively small margin of profit because the margin is guaranteed. The large investment required for an integrated feeding enterprise such as this may limit the number of such operations.

Contract Feeding

The practice of feeding cattle by contract in custom feed yards is growing in Texas, Prof. Magee said, and is coming even more rapidly in other states to the west.

Some custom feed yards have capacities ranging up to 30,000 head at a time, he went on. The larger yards use all the modern labor-saving devices available.

A limited number of yards finance a large part of the cost of the cattle as well as the cost of the feed. These contract feeders are operating as both banker and feed manufacturer in that they provide credit and process and deliver feed for their customers—the owners of the cattle in their yards.

Men who feed livestock on a contract basis usually agree to supply a particular weight and grade carcass to meet the retail demand. Consequently, these feeders will choose feeder animals that will put on the desired weight and finish economically. This special demand may affect the range livestock producer because the ranchers who can supply feeders of the desired type and weight will have a better market for their calves.

A major meat packer reportedly is ready to start a range breeding program in Colorado, Prof. Magee said, and the calves there will be under contract to the packer who will feed them in his own yards or in some of the commercial yards in the state.

At present, he continued, about 40% of the major feed companies are said to have integration agreements with cattle producers or feeders. Also more than one third of the major meat packers have vertically integrated cattle programs. Recent studies indicate that 10 to 20% of all fed cattle slaughtered today are the result of integrated arrangements, he said.

Consumers are more and more writing the specifications for the producers of beef. The American housewife wants her beef when, where and in the form and at the price she considers a good buy. The cattle feeder is recognizing that he must produce uniform quality and in the quantities necessary to meet the needs of specification buying. He does this through specification production, Prof. Magee concluded.

Dr. Francis Wingert

JOINS NUTRENA — Dr. Francis Wingert, former director of swine research for the University of Maryland, has joined the staff of the Cargill-Nutrena research farm near Elk River, Minn. He has been placed in charge of swine nutrition, housing and management research programs and research farm work with the Pig-loo hog raising system introduced this year by Nutrena Mills, feed division of Cargill, Inc. Dr. Wingert holds B.S. and Ph.D. degrees from the University of Minnesota.

Program for Far West Turkey Show Outlined

MODESTO, CAL. — The program for the Far West Turkey Show, to be held Dec. 2-4 in Turlock, Cal., was announced recently by F. W. Vickrey, show president.

Meetings scheduled during the show include those of the Turkey Breeders, California Turkey Federation, Western Poultry Congress Board and the California Poultry & Hatchery Federation. Also scheduled are a turkey show golf tournament, banquet, a barbecue and a meeting of the California Turkey Federation Board.

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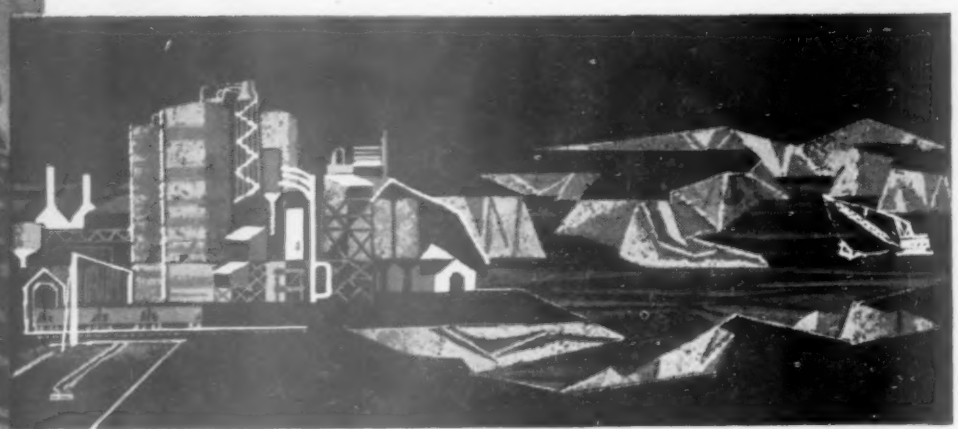

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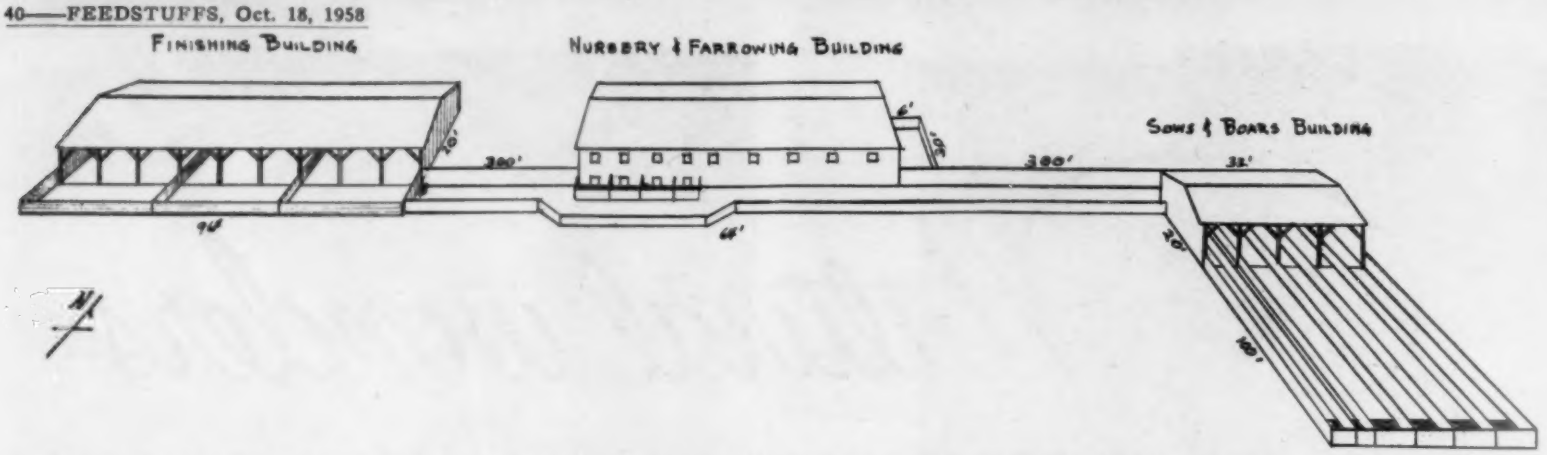


This is a drawing of the facilities used in the "Pork Plant" hog production program announced recently by the Ranch-Way division of Colorado Milling & Elevator Co. The "plant" starts with the sow unit and continues through a finishing building.

Ranch-Way's New Hog Production System Outlined

DENVER — The Ranch-Way division of Colorado Milling & Elevator Co. recently outlined its year-around "Pork Plant" designed to set up pork raising business on a factory-like basis.

According to Ranch-Way, climatic conditions in Colorado — no severe summer heat and no long periods of extreme cold in the winter—make pork producing advantageous in the area.

Details of the plan, the company says, start with the selection of the breeding stock from meat-type hogs. Sows and boars for breeding stock should be long and meaty, should have 12 to 14 teats, good legs, straight underline and conformation.

The company will help in the selection of the breeding stock.

For the market hog producer, a cross-breeding program with two pure-breds (or hybrid) boars is recommended. Generally speaking, the company says, each sow should have two farrowings before she is sold.

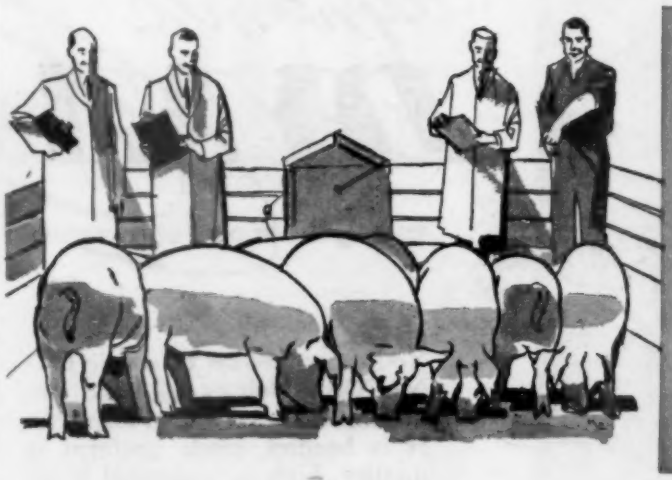
The "plant" starts with the sow unit, designed for 32 sows and two boars. The sows are bred on a schedule discussed in the "Pork Plant" booklet published by Colorado Milling & Elevator Co. One boar can service 32 sows on the plan but double-breeding by the second sow has proved better, the company said.

The building size for the sows and boars consists of a three-sided building open to the south, with an overall size of 20 by 32 ft. The floor is of concrete. The sow area of the building consists of four partitioned areas 6 by 20 ft., with exercise areas extending out from the building at least 100 by 150 ft. Automatic, heated waterers and self-feeders are installed on concrete slab located at the far end of the exercise area. This requires the sow to travel from the bedding area inside to feed and water. The exercise area should be sown with some kind of seed each year to minimize muddy conditions, the company suggests.

Two boar pens, 4 by 20 ft. with exercise areas as long as the sow areas, are laid out within the building. Each exercise area is separated by fence using creosoted poles on 8-ft. centers. A gating arrangement allows for movement from one pen to another. Sows remain in this unit through gestation period and are

For the second straight year of hog feeding comparisons...

Arsanilic Acid produces



Feed‡	Feed per pound of Gain	Feed Cost per 100 lbs. Gain
Basal Ration	3.36 lbs.	$9.19
Basal Ration plus 3-nitro-4-Hydroxy-phenylarsonic acid	3.32 lbs.	$9.10
Basal Ration plus 4 antibiotics*	3.27 lbs.	$9.19
Basal Ration plus Arsanilic Acid	3.15 lbs.	$8.66

‡Jordan, C. F., Beeson, W. M., and J. H. Conrad, Purdue University Ag'l Exp. Station Progress Report, August 22, 1958.

*5 Gms. Chlortetracycline, 7.5 Gms. zinc bacitracin, 2.5 Gms. penicillin and 5 Gms. oxytetracycline.

THREE NEW TECHNICAL INFORMATION FOLDERS AVAILABLE...

They explain in complete detail what Arsanilic Acid is, what results it gives, practical field testing behind it, its safety, forms, prices, as well as complete labelling instructions:

- F-400—How to Fortify & Label Swine and Poultry Feeds with PRO-GEN (Arsanilic Acid).
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removed during farrowing. They are returned to the sow pen after weaning.

Move the sows to the farrowing house three to four days before farrowing date, according to Ranch-Way. Each sow is placed in a stall where she remains throughout the complete period. Under the Ranch-Way plan the nursing period is four weeks.

Sows are let out of the farrowing house to a patio on the east end of the building for about an hour, two or three times a day to feed, water and manure.

From the time the sow enters the farrowing stall, she is fed lactation ration. On the day after farrowing she is fed 3 to 3½ lb. of lactation ration. Each day after the ration is increased until full feed is reached. When the pigs are four weeks of age weaning begins and the sows are returned to the sow unit. The litter goes to the nursery area.

The nursery unit is part of the farrowing building with a solid partition between. The partition has a door to allow for movement of pigs from farrowing unit to nursery. The nursery is 24-ft. long and 20-ft wide. It is divided into four pens on each side, 6 by 8 ft. This is done to keep pigs as litters for eight weeks.

The floors in the nursery pens are heated with electric cables in the floor. Patios are built on the outside of the building to allow pigs to become accustomed to the weather before moving to the finishing unit.

At eight weeks the pigs are moved to the finishing unit. The unit consists of a three-sided building open to the south. It is 96-ft. long and 20-ft. wide and has a 10-ft. patio connected to the outside. The building and patio are divided into three equal parts with 4-ft. hog fencing. Each pen has a maximum capacity of 75 hogs. One 16-hole feeder is placed just under the roof of the building in each pen and a double, automatic, heated waterer is placed at the end of the patio in each pen.

A complete feeding program, for all phases of the Ranch-Way plan, is included in the company's booklet. The feeding program is based on both complete feeds and concentrated and grain feeds.

Advantages of using the Ranch-Way "Pork Plant," the company says, are:

1. Year-around breeding and farrowing under controlled conditions to produce the most marketable meat-type hog.
2. Efficient management practices that save time and labor.
3. Easy and effective disease control.
4. Minimum cost buildings and equipment with maximum use.
5. More effective use of home grown grains.
6. Scientifically controlled feeding programs for efficiency in each step of the operation.
7. Year around marketing and the elimination of seasonal slumps.
8. Cash crop diversification without affecting other farm and livestock operations.

Plans for National Egg Month Told

WINTERVILLE, GA.—Next March will be National Egg Month, it was announced by Dr. Thomas J. Harrold, chairman of the Poultry & Egg National Board's egg commodity committee.

This will be the 19th year in which the egg industry has observed a National Egg Month. March has been designated for the third consecutive year.

"We are confident that the entire food industry will lend its full support to next year's National Egg Month, as in the past," Dr. Harrold said. "We are making the announcement at this time so that those who wish to cooperate may start making their plans now."

Those desiring more information may contact A. William Jasper, director of egg promotion, Poultry & Egg National Board, 8 S. Michigan Ave., Chicago 3.

Pigs Eat More Creep Feed When Flavor Is Improved, Tests Show

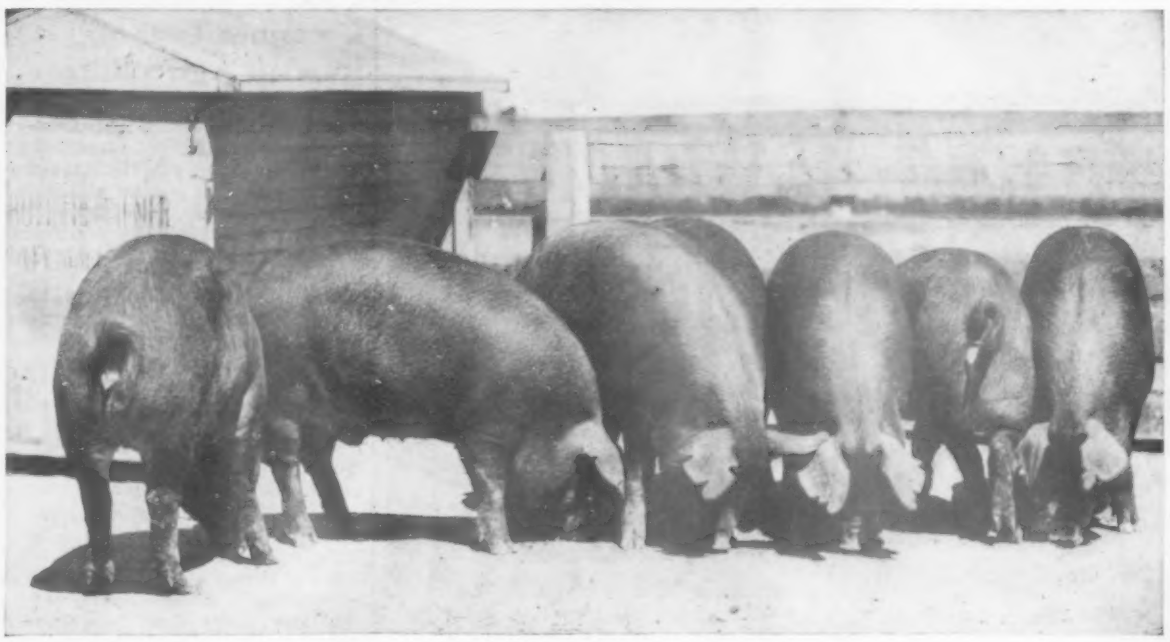
WOOSTER, OHIO — Saccharin, lard, corn sugar and dried molasses all encouraged baby pigs to eat more creep feed in tests at the Ohio Agricultural Experiment Station.

A report on the research added that "more surprising," so did such materials as limestone and steamed bone meal. The report explained that the time of a pig's life between birth and weaning is extremely important, that during these eight weeks the pigs have a potential for rapid gain which the hog grower can cash in on by catering to the pigs' taste.

Dr. E. A. Rutledge and Dr. H. S. Teague, of the experiment station and department of animal science, respectively, reported that Duroc and Yorkshire pigs fed saccharin in the rations—1 lb. per ton—ate 5 lb. more feed in three weeks than pigs given a ration of corn and oat groats with salt and antibiotics added. On the other hand, they pointed out that in the two-season trial, 1% limestone plus 1% steamed bonemeal or 10% lard mixed into the feed hiked feed consumption most consistently.

Pigs getting saccharin ate an average of about 6.5 lb. from the second to the fifth week, compared to less than 2 lb. for the control pigs. The corn sugar made the feed more palatable and, except for one group of pigs this year, pigs ate more of this creep ration. Cooking the corn-oats basal ration also increased the amount of feed eaten by nearly 2 lb. per pig.

The consumption of a feed is influenced by kind, amount and physical qualities of the ingredients, the swine researchers note. They will continue research on these factors.



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Yes . . . for the second straight year, Arsanilic Acid produced the most economical weight gains of all antibiotics and arsenicals in 90-day practical swine feeding tests at Purdue University.

For the second straight year, only pigs receiving Arsanilic Acid produced gains for less than 8¾¢ per pound of gain, including the cost of growth stimulants added to the ration.

In the 1958 comparisons, only Arsanilic Acid produced weight gains for less than 9¢ per pound. It increased average daily weight gains 12.1% over the control group which was fed a balanced ration. Of the additives fed, Arsanilic Acid resulted in the most efficient gains. It improved feed efficiency 6.25% compared to 2.7% for the best combination of antibiotics and 1.1% for another arsenical.

Effective in Supplements and Concentrates: Arsanilic Acid in your supplements, concentrates or complete feeds will give them the "punch" they need when it counts most. It can give such outstanding results because of its *low-cost and proved effectiveness.* Hogs make better use of their feed . . . make thriftier gains all the way to market time.

For more satisfied customers and better resales . . . make sure your supplements and concentrates are fortified with safe, effective Arsanilic Acid.

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California Speakers Discuss Effects Of Integration

BERKELEY, CAL.—A study of the probable effects of vertical integration on California agriculture brought more than 100 agricultural leaders here recently at the invitation of the California Farm Bureau Federation.

Purpose of the agricultural forum was to get a common understanding of the term "integration" as applied to agriculture; to discuss the implications of the movement so far as farmer cooperatives are concerned; to examine the shift in capital and operational requirements under an integrated program, and to consider the importance of who is to do the integrating and who is to benefit.

L. A. Rozzoni, California Farm Bureau president, who called the meeting, was the presiding officer.

A group of seven speakers, each an authority in his line, discussed the problem and participated in two hours of questions and answers. Dr. Winn Finner, U.S. Department of Agriculture Marketing Service, Washington, opened the session by outlining changes taking place across the nation both in production and marketing. He was followed by Dr. Raymond G. Bressler, Jr., agricultural economist at the University of California, who led an hour-long discussion period.

Adjusting to Integration

The afternoon session was largely devoted to consideration of how farmers and their organizations can adjust to these changes. L. A. Thompson, manager of the Poultry Producers of Central California, outlined possibilities through use of agricultural cooperatives, while W. E. Hamilton, director of research for the American Farm Bureau Federation, discussed opportunities to meet buyer concentration through other forms of integration. W. F. Mixon, Jr., senior vice president of the Federal Intermediate Credit Bank, analyzed the financial aspects of integration. Another hour of discussion was led by Dr. George B. Alcorn, director of the agricultural extension service, followed by a summarization by Dr. G. Alvin Carpenter, agricultural extension service economist.

As defined by Dr. Finner, "vertical integration" occurs where two or more functions are consolidated and one management makes the decisions for all. Thus integration could start at the bottom, with the farmer working up through his cooperatives, or from the top down, with some financial or business group having control and making the decisions.

"California farmers have been leaders in the cooperative field for years and are thus in a better position than those in many other parts of the country," it was said. "However, integration in other areas will bring competition to California farmers from new sources. To meet new standards of quality established through contract buying or contract farming, farmer cooperatives must have greater strength in membership, and greater scope in activity.

"The co-ops must alert their members to necessary changes in production to meet competition and in many instances must find ways to finance their members. Integration will probably mean better produce at a lower price to the consumer, but can also mean added income to the farmer."

Farmers will be integrated, the speakers agreed, and the question of whether the farmer or the business man will be the boss will depend on who puts up the money. If farmers meet the needs of changing times through their cooperatives, they will be in control, some speakers said. If they don't, they can be assured someone else will do the integrating.

Feed Firm Executive Describes Tour of Russian Agriculture

TERRE HAUTE, IND.—Research toward improvement of agriculture in Russia was a dominant theme in an address by Laton M. (Red) Henderson, appearing as a guest speaker at a recent seminar meeting of the Commercial Solvents Corp. research and development department, Terre Haute.

Mr. Henderson, vice president, feeds division of Doughboy Industries, New Richmond, Wis., this summer spent several weeks touring Russia and other European countries as a member of a group of farm leaders from the U.S. The tour included collective and state farms in the Kharkov and Kiev regions which were previously restricted areas.

He pointed out that evidence of Russia's ability to capitalize on U.S. know-how was the revelation that 100% of the state dairy farms in Russia practice a scheme similar to the American Dairy Herd Improvement Assn. (A recent issue of Wisconsin Farmer reported that 39% of the Wisconsin dairy farmers were not enrolled in the DHIA program because they "did not know enough about it.")

Mr. Henderson's observations reflected the typical problems encountered by the Russian peasants in their daily lives. His talk was supplemented with color slides. Included in the talk were comments about agricultural exhibits in Moscow and at the Brussels World's Fair.

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More than a dozen years ago we accepted research as our obligation—an obligation to our customers, as well as to ourselves. The Lime Crest Research Laboratory was built and staffed in 1945, and research has been under way there ever since.
This never-ceasing research has been of great value to Lime Crest's customers because it has provided them with consistently better trace-mineral premixes—distinctly better than could have been provided without research.
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Deadline Announced For Reserving Feed Show Exhibit Space

MILWAUKEE—Exhibitors at the 1957 National Feed Show are being given a priority at the 1959 show scheduled May 10-13 at the Conrad Hilton Hotel in Chicago. These firms have until Oct. 31 to claim their former exhibit area.

Already reservations are heavy, according to Eldon H. Roesler, manager of the show, and many have requested additional booths. The feed show will again be held in conjunction with the annual convention of the American Feed Manufacturers Assn. The 1957 event attracted more than 3,000 persons.

As soon as priorities have been exercised by former exhibitors, other firms will be given an opportunity to obtain exhibit space if there is any available. Such firms can make their intentions known after the Oct. 31 deadline, and space will be allocated in order of their requests, according to Mr. Roesler.

Exhibitors from all segments of the feed and grain trade are expected to be on hand at the 1959 show, he said, and early indications are that many of the equipment firms are making elaborate plans to show their complete lines and highlight all the improvements made in the past two years.

Both the north and south halls at the Hilton will again be used by the feed show. The show will open on Sunday, May 10 at 1 p.m., and this will be "advance look" day, which will permit all persons to attend without registering. The show will again be opened on May 11, 12 and 13, but admission then will be only by means of a registration badge for the AFMA convention.

The AFMA will hold committee meetings May 11, and general convention sessions the mornings of May 12 and 13. The feed show will be open from 11 a.m. to 7 p.m. on May 11, from noon to 6 p.m. May 12 and from noon to 3 p.m. May 13.

Feed show headquarters are maintained at 1712 W. St. Paul Ave., Milwaukee 3, Wis.

Special Purpose Feeds Permitted in Kentucky

LEXINGTON, KY.—It is possible to register feeds in Kentucky which are designated and labeled for special purposes not generally covered by the "chemical standards" set up in rules and regulations under the state feed law. This was pointed out in a recent bulletin from the feed and fertilizer department at the Kentucky Agricultural Experiment Station. The provision, the department said, is in keeping with advances in nutritional knowledge.

Registration may be accepted for feed that can be shown to have a recognized place in the feeding program if the labeling clearly indicates how it is to be fed and what the feed is for. An example of this is the recently introduced "pullet developer" feeds, the bulletin said. These feeds carry considerably more fiber and are lower in protein than is provided by the general designation of "growing mash."

The bulletin also pointed out that the standard for pig feeds now permits a minimum of 2½% fat and a maximum of 7% fiber. Formerly the fat level was 3% and the fiber maximum was 6%.

The protein standard for hog feed for fattening purposes has been lowered from a minimum of 12% to 10%. The fat minimum remains the same at 2½%, and a maximum of 8% for fiber is required.

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Swine Meeting Program Set, Theme Announced

LAFAYETTE, IND. — "How Far Have We Come? How Fast Are We Going? Where Are We Headed?" will be the theme of the National Swine Industry Conference to be held on the Purdue University Campus here, November 3-4.

Keyed for all segments of the swine industry, highlights of the two-day program include:

● A general session on swine production featuring papers by J. C. Hiller, Oklahoma State University; D. V. Catron, Iowa State College; S. H. McNutt, University of Wisconsin, and Harry Russell, University of Illinois.

● A luncheon address by Earl L. Butz, dean of agriculture, Purdue, who will talk on "An Optimist Looks at the Swine Industry."

● A general session on hog and pork marketing featuring papers by Henry Eavy, president, Super Market Institute; John A. Jones, Geo. A. Hormel & Co., and Clifton B. Cox, Purdue.

● A dinner address by Carl Neuman, manager National Livestock and Meat Board, who will talk on "The Plus Values in Pork."

There will also be a series of seven work shop sessions. These include:

1. Swine Breeding and Reproduction. C. W. Mitchell, National Assn. of Swine Records, is the chairman.

2. Swine Nutrition. Warren A. McMillan, A. E. Staley Mfg. Co., is chairman.

3. Disease and Other Losses in Swine. Harry Kingman, American Veterinary Assn., is chairman.

4. Management Systems in Swine. L. L. Stewart, an Indiana swine producer, is chairman.

5. The Marketing of Live Hogs. Paul Zillman, American Meat Institute, is chairman.

6. Merchandising Pork Products. Roy Edwards, Wilson & Co., is chairman.

7. The Consumer Market for Pork. Miss Reba Staggs, National Livestock and Meat Board, is chairman.

According to an industry spokesman, the conference is necessary because the industry is at present going through a period of change of "near-revolutionary" proportions. The conference is set up, the spokesman said, to improve the efficiency of the swine and pork industry, thereby improving its economic positions and enabling it to better fulfill its responsibility to the consuming public. These purposes are to be achieved through stimulation and promotion of a nationwide program of research and education in the major fields of swine production and marketing.

Sponsors of the conference include: Purdue University, American Farm Bureau Federation, American Feed Manufacturers Assn., Inc., Animal Health Institute, American Meat Institute, American National Livestock Auction Assn.; American Stockyards Assn., American Veterinary Medical Assn., Cornbelt Livestock Feeders Assn., Farm Equipment Institute, Farm Foundation, Livestock Conservation, Inc., National Association of Swine Records, National Grange, National Independent Meat Packers Assn., National Live Stock and Meat Board, National Livestock Producers Assn., National Stockyards and Exchange Foundation, National Swine Growers Council, River Markets Livestock Group, U.S. Livestock Sanitary Assn., Virginia Department of Agriculture, and Department of Markets.

V. T. Currier

APPOINTED—V. T. Currier recently was appointed general manager of the grit division of the North Carolina Granite Corp., Mount Airy, N.C. He was sales manager of the division for many years.

Mills Continue to Add New Equipment

Many local feed mills are continuing to install new grain processing and handling facilities. Evidence of this is found in a report from the Bryant Engineering Co., Port Huron, Mich.

The report tells of 35 recent machinery installations, including corn shellers, hammermills and other equipment, in 11 different states—Alabama, Michigan, North Carolina, Iowa, Ohio, Indiana, Wisconsin, Mississippi, Virginia, Maryland and Illinois.

CALIFORNIA APPOINTMENT

SAN FRANCISCO—Dr. Ray W. McFarland has been appointed chief of the bureau of meat inspection, California Department of Agriculture, to fill the vacancy created by the retirement and subsequent death of Dr. Geoffrey Boyd. Dr. G. W. Yeager has been appointed assistant chief.

No. 3 of a Series

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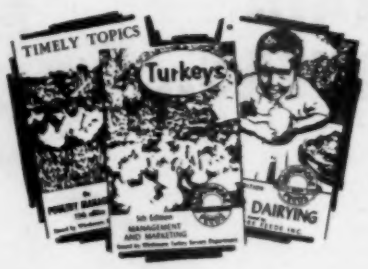

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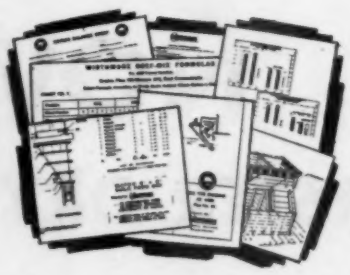

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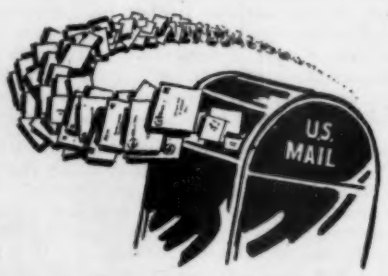
Each year, well over a million individual pieces of Wirthmore printed aids are distributed, including such helpful material as postcards, bumper stickers, posters and highway signs promoting the industry by encouraging the public to consume more eggs, chicken, milk and meat.



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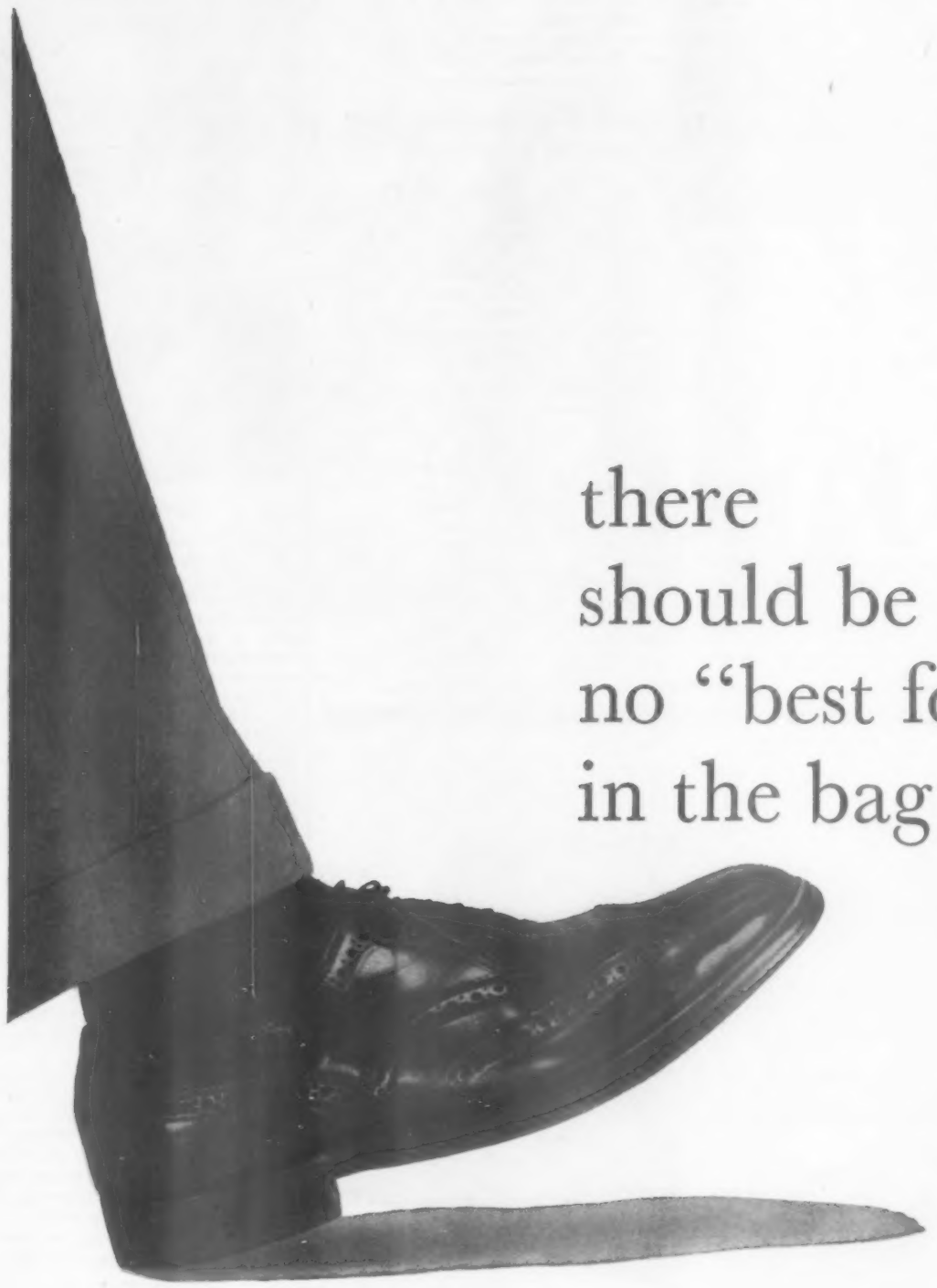

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Illinois Feed Sales Group's Projects, Officers Announced

CHICAGO — Association projects and a slate of new officers for the Illinois Feed Sales Managers Assn. have been announced by the affiliated association, the Illinois Feed Assn.

One of the current projects of the feed sales group is to promote attendance at the annual convention of the Illinois Feed Assn. and the Illinois Poultry Improvement Assn. Nov. 5-6 in the Springfield armory. Salesmen of the member feed manufacturing companies will call upon the 4,000 feed dealers throughout the state to try to obtain pledges of attendance at the convention, or preregistration fees. The salesman with the largest total attending for which pledge cards have been turned in will win a trip to either Mexico City or Acapulco.

Other projects with which the sales managers group is presently involved are: helping the Illinois State Veterinary Medical Assn. plan a one-day nutrition conference Nov. 19 at Peoria Heights; acting as hosts to the University of Illinois college of agriculture faculty at an annual Christmas party in Springfield Dec. 5; helping correct the Illinois Feed Assn.'s directory; co-sponsoring a nutrition conference in January, and promoting attendance at the Poultry Producers Day and Swine Growers Day with the University of Illinois.

This year the group helped establish the first regional district of the Illinois Feed Assn., formed to assist state feed dealers with common problems.

The new association officers are: Elmer Roth, Honeggers' & Co., Fairbury, president; George Hawkins, Illinois Farm Supply Co., Chicago, vice president, and A. T. Myren, Faultless Milling Co., Springfield, treasurer. Dean M. Clark, Chicago, is secretary of the group.

Companies now holding membership in the sales managers association are: Allied Mills, Inc., Decatur; Archer-Daniels-Midland Co., Springfield; The Beardstown (Ill.) Mills; Community Feed Mill, Princeton; Dixie Mills, Inc., East St. Louis; Faultless Milling Co., Springfield; Honeggers' & Co., Fairbury; Illinois Farm Supply Co., Chicago; Kent Feeds, Inc., Osco; M. D. King Milling Co., Pittsfield; Ralston Purina Co., St. Louis and Bloomington, Ill.; Sauder Feed Mill, Tremont; Siemer Milling Co., Teutopolis; A. E. Staley Manufacturing Co., Decatur; Supersweet Feeds, Monmouth, and Thompson Farms Milling Co., Chicago.

Feed Registration Fee Increase Proposed For New Hampshire

CONCORD, N.H.—A plan to increase New Hampshire's commercial feed registration fee from $15 to $25 a unit has been endorsed by the state agricultural advisory board, which has expressed hope that the proposal will be accepted by the New Hampshire legislature and the feed industry.

The board voted its support for the proposal at its recent quarterly meeting here after the plan had been explained by Perley I. Fitts, state agriculture commissioner, and George H. Lamamie, control supervisor of the agriculture department.

It was pointed out that the $15 fee had been in effect in New Hampshire since 1919 and that even the proposed increase to $25 would still leave this state with a lower charge than many states, which charge a tonnage tax along with the registration fee.

It was announced that feed manufacturers would be sounded out on the proposed fee increase, either by mail or through conferences if they desire, with the belief that they will agree that inflation and changing conditions warrant the hike in the fee.

The agriculture department has expressed the opinion that a tonnage tax system would be unpopular in New Hampshire due to small lot handling, the additional bookkeeping that would be required and the cost of administration.

The $15 fee brought in revenue of $25,455 during the fiscal year 1957-58, according to Mr. Fitts, and the new rate, if adopted, would increase the amount to approximately $41,000.

About 1,600 different grain formulas and names are registered with the department's office here.

The proposed new rate would become effective in January, 1960.

Philip S. Duff

GRAIN EXCHANGE—Philip S. Duff has been elected president of the Minneapolis Grain Exchange, succeeding G. W. P. Heffelfinger, vice president of F. H. Peavey & Co. Mr. Duff is vice president of Archer-Daniels-Midland Co. He has been a member of the exchange board of directors since 1948, and is the 66th president in the 77-year history of the exchange.

MFA Adds Warehouse

ST. JOSEPH, MO.—Construction of a warehouse addition and loading dock has been started here at the MFA grain and feed division. The one-story metal warehouse section will have 6,000 sq. ft. of floor space and a capacity of around 600 tons. A. J. Loutch, general manager, said a 2,000 sq. ft. dock will be attached to the new addition. Lehr Construction Co., St. Joseph, is contractor.

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Research Reports, Addresses Given at Florida Swine Day

GAINESVILLE, FLA. — Nine research reports by Florida scientists and several addresses pertaining to swine production were presented at the third annual Swine Field Day held recently at Gainesville.

The event was sponsored by the Agricultural Extension Service in cooperation with the animal husbandry and nutrition department at the University of Florida.

Summaries of the research reports follow:

Free-choice feeding versus a complete mixed ration for finishing market swine: Two experiments were conducted, the first with 30 weanling pigs and the second with 27 feeder pigs. In the first test pigs fed a complete mixed ration gained significantly faster, ate more feed per animal per day, but converted the feed to pork less efficiently than did pigs fed free-choice. A study of the costs and returns indicated that the free-choice method of feeding was more economical. This was true because the feed costs per 100 lb. gain averaged $1.76 less for this group of animals.

In the second experiment pigs fed the complete mixed ration gained significantly faster, required seven days less time to reach market weight and returned more profit per animal than did pigs fed either ground corn or ear corn on a free-choice basis. Results indicated that the complete mixture method of feeding was superior to the free-choice method of feeding.

Preliminary observations on hesperidin, a citrus bioflavonoid, as a supplemental feed ingredient for weanling pigs fed on concrete: An experiment, involving 40 weanling pigs, has been conducted to determine the supplemental value of hesperidin, a citrus bioflavonoid, to a well fortified corn-soybean oil meal type ration fed in dry lot. A statistical analyses of the data indicated that the hesperidin supplementation produced no significant response in pig performance. However, variations in response were observed between replicates, and this might well indicate a need for further testing of the material under varying conditions, as well as a study of additional levels of supplementation.

The influence of cooling growing-finishing swine on gains and feed conversion: Two experiments, involving 100 pigs, have been conducted to study the value of cooling growing-finishing swine during the hot summer months. In a dry lot experiment very favorable results were obtained by the use of a fine mist spray. Temperatures were quite warm during the finishing period, and it was observed that most of the response from the spray occurred during this period.

In the other experiment, which was conducted on millet pasture and involved the use of a garden sprinkler for cooling purposes, no improvement in gains or feed conversion was recorded. A possible explanation for these results was the relatively cool temperatures and excessive precipitation which prevailed during the experimental period.

It is concluded that an effort should be made to cool swine, particularly during the finishing period. The use of a fine mist spray worked very well in this study. This method requires much less water than the sprinkling method and appears to be quite efficient in the cooling process.

Further studies on the use of soybean oil meal for pigs hogging off corn: An experiment, involving 45 feeder pigs, was conducted. Animals self-fed a protein supplement consisting of soybean oil meal diluted with a mineral supplement gained more rapidly and efficiently than pigs hand fed the same mixture. Vitamin supplementation did not result in more rapid or more efficient gains. Hand feeding the protein supplement once every two days produced essentially the same results as hand feeding the supplement once daily.

Mycostatin and chlortetracycline as antibiotic feed supplements for growing pigs: A study involving 80 weanling pigs has been conducted to determine the supplemental feeding value of these products. Results obtained showed no significant effect of the antibiotic treatments on gains, feed intake or feed required per pound of gain. Cultures made on fecal samples for yeasts and molds indicated some possible treatment differences but in general were not conclusive. The presence of Candida Albicans, a toxic strain of fungi, was not confirmed in these pigs. Numerous other types of Candida were cultured in all samples.

Low level continuous feeding of piperazine phosphate and hygromycin feed supplement to growing-finishing pigs: Eighty weanling pigs were used in two experiments to test the value of low level continuous feeding of piperazine phosphate and Hygromix.

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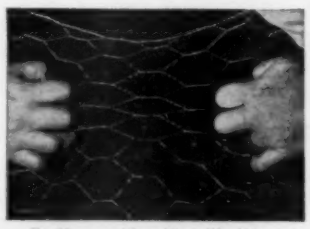
This horizontal wire woven into the fabric prevents gaps or holes by adding support where it's needed. Keyline hugs the ground . . . stands smooth and tight! The stretch test gives you and your customers proof.



Ordinary Poultry Netting
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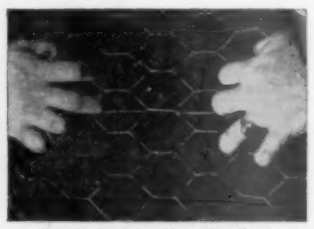

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In both experiments low level piperazine phosphate caused improvement in growth rate which appeared to be the direct result of greater feed consumption. From results of worm counts made in the second experiment it would seem that the piperazine was not exerting its beneficial effect on gains and feed intake as a result of anthelmintic action.

Swine feeding studies—(1) free-choice versus complete mixed rations, (2) effect of low level continuous piperazine phosphate supplementation: Pigs fed a complete mixed ration gained significantly faster and converted feed to weight gains much more efficiently and economically than did similar pigs fed ear corn and supplement free-choice. Pigs supplemented continuously with 40 gm. of piperazine phosphate per 100 lb. feed gained significantly faster than control pigs. They also consumed more feed and converted it to gain more efficiently. A level of 20 gm. of piperazine phosphate, however, proved ineffective in improving either rate or efficiency of gain. The piperazine supplementation did not appear to exert an anthelmintic effect as judged by worm counts made at the termination of the trial.

Oxytetracycline alone and in combination with mycostatin for garbage-fed swine: One hundred and eighty pigs were fed in two trials to determine the supplemental feeding value of oxytetracycline alone and in combination with mycostatin for pigs fed garbage on dirt lots. Oxytetracycline improved rate of gain in both trials. When mycostatin was included in the ration a marked additional response in gains was obtained.

Researchers Reporting

Giving the research reports were Dr. H. D. Wallace, Dr. G. K. Davis, K. L. Durrance, C. E. Haines, G. M. Edwards, R. B. Christmas, and J. W. Hunt, all of the department of animal husbandry and nutrition, University of Florida, and Dr. L. E. Swanson, department of veterinary science.

Dr. T. J. Cunha, head of the department of animal husbandry and nutrition, said the outlook is for a 14% greater pig crop this fall as compared to last year. "Hog prices this fall should be near those of last year, but next spring's prices will be below those of 1958," he predicted. "If hog numbers increase considerably this fall and next year, hog prices will decrease considerably in the summer and fall of 1959, and will continue low into 1960.

"Hog numbers have been declining in Florida since 1940, but total pork production has stayed almost the same. This is because the increased number of pigs saved per litter and the increased weight of market hogs have just about made up for the lesser number of pigs.

"The long-term outlook for hog production in Florida is good since Florida has a fast growing population, and at the present is producing only 20-25% of the pork it consumes. Florida can increase its pork output by following better production practices and by increasing its yield of corn. It can also place greater emphasis on the production of feeder pigs, for which it has an excellent market."

Dr. Cunha said that the average swine producer in this country is doing a rather poor job in his production program, and that unless this trend is reversed the small inefficient swine producer will be replaced by the large operator who uses the latest research findings and produces a high quality market hog at the least cost possible.

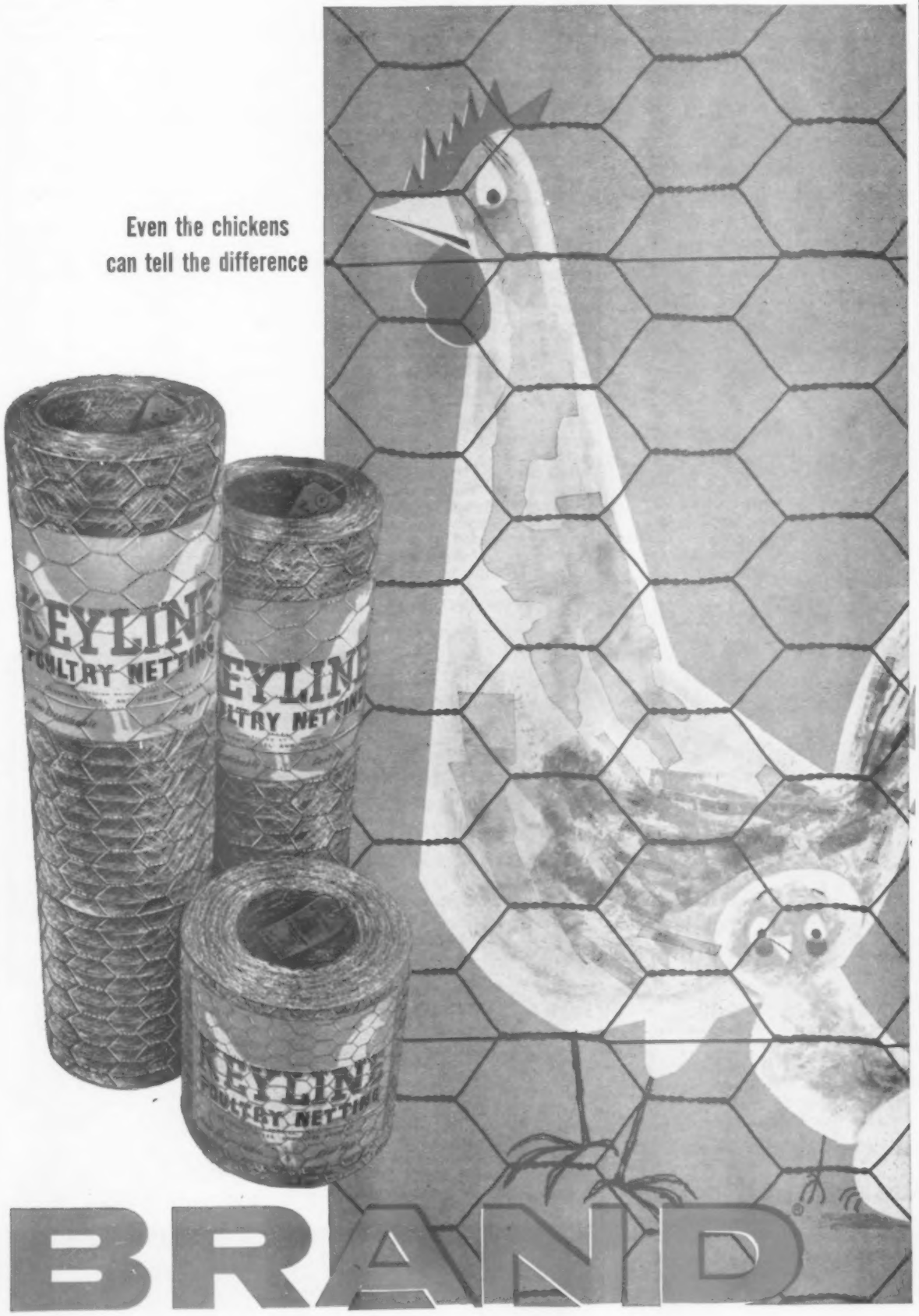
"The average swine producer is still using the luxury of allowing himself 15 years before he decides to use a new research finding which has been shown to be practical and economical. He will need to forego this luxury and become an efficient producer of a high quality animal," Dr. Cunha said. "Otherwise the inevitable fate of our present 2,500,000 swine producers could be their displacement by: (1) 60,000 efficient swine producers with 100-sow herds, or (2) 6,000 efficient swine producers with 1,000-sow herds, or (3) some similar number of large, efficient swine operations.

"The chicken, broiler, turkey, sheep, cattle and fish industries are fighting hard for their share of the housewife's food dollar. Unless the swine industry does likewise and increases the quality of its product, it will find per capita pork consumption decreasing as it has in the last 10 years."

Contract Swine Production

Dr. C. C. Moxley, department of agricultural economics at the university, pointed out that contract farming has not as yet gained any considerable foothold, that it has been estimated that less than 2% of the hogs are currently being produced under contract. "This idea of contract production, though, is important because this 2% could easily expand to 50% or more in a very short time," he said.

Dr. Moxley explained that contract farming in hogs is of two general types—the feeder-pig contract and the sow-and-pig contract. "Feeder-pig contracts are much like broiler contracts that we have heard so much about. Frequently, the feed dealer supplies the pigs, feed, specialized management, and takes the hogs when they are ready for market.



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OLD AND NEW—A three-way hand clasp joins representatives of the newest and oldest donors of national 4-H Club program awards—Moorman Manufacturing Co., Quincy, Ill., and Montgomery Ward, Chicago. Montgomery Ward, represented by Robert Guelich (left), director of public relations, has supported the 4-H girls' home economics program continuously for 36 years. The Moorman firm, represented by O. W. Randolph (right), sales promotion manager, is offering awards for the first time in a new 4-H swine program. In the center is Kenneth H. Anderson, associate director of the National Committee on Boys and Girls Club Work.

A common rate paid to the farmer is 2¢ lb. of gain," he said.

"In the sow and pig contract, the usual procedure is for bred sows to be leased to farmers. Sometimes special meat-type hogs are supplied and arrangements made for marketing at premium prices. One contract that has received considerable attention is a combination contract with the feed company and the meat packer acting as joint integrators. Growers are required to adopt a multiple farrowing system that furnishes the packer with a year-round supply of animals. Under this plan, the feed company supplies the supplements which are paid for at the time the hogs are sold. The farmer makes his own arrangements to finance buildings and equipment. Most meat packers are interested in contract swine production because of the need for a uniform supply of animals, so they can make more efficient use of their slaughter facilities. Feed companies have a natural interest because it provides an outlet for feed.

"One important aspect of contract production of swine when it is financed by feed dealers is the constant pressure to expand. Continued expansion by efficient operators might increase the supply of pork to the point that prices could hover near the cost of production. There would be very little fluctuation in prices from year to year. The hog cycle as we know it would disappear. The corn-hog ratio could become very narrow. The in-and-outer and the inefficient producer would be eliminated.

"There are still some reasons why this will not likely occur in the near future. One drawback is a reliable source of feeder pigs. Perhaps some of you will find great opportunity here. Pig hatcheries have been tried for several years but most of them have been discontinued because of various problems related to diseases

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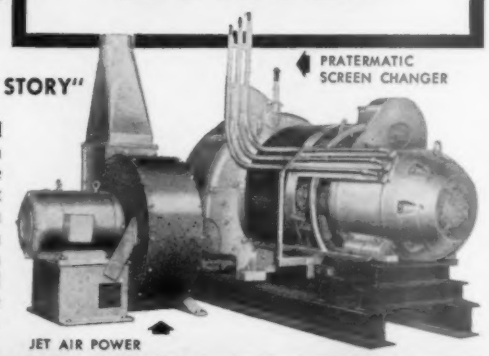

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Lilly **REPORT TO THE FEED INDUSTRY**

INTERVIEW WITH CHAMPION BARROW RAISER J. R. BEATTY, AVON, ILLINOIS

"Hygromix® does best job of swine worm control"

by Eugene S. Hahnel

Bob Beatty evidently knows how to raise hogs with the best of them. His Grand Champion Barrow at the 1958 Chicago Spring Barrow Show is pretty good qualification.

But Mr. Beatty has to fight the worm problem, just like everyone else. For the past year Bob has been using a new weapon . . . Hygromix. A careful man, he checked the job Hygromix was doing several times with a purge-type wormer. He checked his fastest and his slowest gainers, barrows fitted for show, and his stock for sale. Result: no worms.

Beatty doesn't mince words: "My own experience shows that Hygromix in feed does the best job of keeping hogs free of worms . . . better than any product put out yet. Although my top pigs make about the same gains, we seem to have a lot fewer 'tail-enders.' I like the idea of being able to protect pigs from birth on, instead of only periodically."

Well-known and respected, Bob Beatty is president of the Western Illinois Swine Testing Association and a director of the Illinois Poland China Breeders Association.

Mr. Beatty's champion barrow was out of "Midnight Revue," a certified meat-type and production registry sire. This barrow weighed 205 pounds and dressed out 75.1%.

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and parasites. Sanitation has been a real problem. If facilities are developed for producing feeder pigs in enormous numbers, and pig hatcheries become truly successful, there will be a tremendous growth in the production of pork by contract. It is likely that in the final analysis this will happen. Some will be hurt, some will be helped. Whether the over-all effects will be good or bad is a question that we will leave to the future."

In an address on protein feeding, Dr. Combs summarized his remarks by saying that a wide variety of both animal and plant protein supplements is available today which are suitable for swine, and that the high quality, relatively low cost and performance obtained with soybean meal generally makes it the protein supplement of choice. As to the means of feeding protein, he said that most of the experimental data show that free-choice feeding of corn and protein supplement permits the swine producer to market hogs at less cost than when a complete mixed ration is fed.

Concrete-Pasture Feeding

Dr. Wallace presented a discussion of feeding on concrete versus feeding on pasture. "There is a definite trend today toward more use of concrete, and there is every reason to believe that this trend will continue," he declared. "This does not mean that every producer should jump on the band wagon immediately and start raising pigs on concrete. This could mean disaster and disappointment for many.

"The more exacting nutritional requirements, the increased labor requirements, the need for prudent sanitation and the very troublesome problem of manure disposal should all be fully appreciated and considered before changing to the slab feeding method.

"A poorly planned and constructed slab is worse than no slab at all. I have seen a few such slabs in this state, and I hope that no more of this type are constructed."

Mr. Durrance discussed the advantages and disadvantages Florida has for the production of feeder pigs. He listed some of the advantages as year-round grazing, a mild climate requiring less housing of animals, and available land that can be used for pasture. The disadvantages listed were low grain yield and lack of cheap protein. Mr. Durrance emphasized that Florida could very well increase its production of feeder pigs.

J. W. Vandepopuliere gave a talk on worming agents for swine, citing several tests conducted at Florida and other research stations. He summarized his information on the various agents as follows:

Sodium fluoride — high toxicity; good efficiency; cost, 5¢ per pig; administration, 1 lb. sodium fluoride thoroughly mixed into 99 lb. feed and fed dry for 24 hours. Mix only one half usual ration.

Cadmium anthranilate—slight toxicity; fair efficiency; cost, 19¢ per pig; administration, bought as a premix which is added 1 lb. to 99 lb. of feed and fed dry for three days—makes a mixture of .044% cadmium anthranilate.

Cadmium oxide—slight toxicity; fair efficiency; administration, as cadmium anthranilate, above.

Piperazines — very low toxicity; good efficiency; cost, 30¢ per pig; administration, includes numerous remedies introduced since 1955—are added to ration for one day or put into drinking water according to directions of manufacturer—in some cases too small a dose has been recommended to cut cost.

Hygromycin B—low toxicity; excellent efficiency; cost, 20¢ per pig; administration, sold in premix called Hygromix which is added to ration at rate of 5 lb. per ton of feed and fed continuously for varying lengths of time.

(Mr. Vandepopuliere added the following information to the above summary: The toxicity of cadmium anthranilate and cadmium oxide is based on residue in the flesh, since animals cannot be slaughtered until 30 days following treatment. Much of the summary information, he said, is based on Extension Circular 1902. Control of the Large Roundworm in Swine, University of Nebraska. Costs of the agents are based on costs for medicaments in the 1955 and 1957 North Platte trials.)

Reports Hens May Need Less Protein

OTTAWA, CANADA—Protein requirements of laying hens may be far less than recommended at present, according to T. M. MacIntyre, nutritionist at the Nappan, Nova Scotia, experimental farm.

Protein levels ranging from 12 to 20% were fed to laying hens at Nappan. There was no evidence to support the view that high energy rations require higher levels of protein than now employed, according to Mr. MacIntyre.

"Indeed, 15% protein has been found to be more than sufficient, and evidence strongly suggests that levels as low as 12% may be adequate," he said.

"While further study is needed, indications are that future laying rations will contain less protein—spelling substantial savings to poultrymen.

"In recent years, use of high energy grains and addition of fats to laying rations resulted in much higher energy levels, and the tendency was to associate high protein levels with high energy levels.

"This led to renewed interest in the protein requirement of the laying hen."

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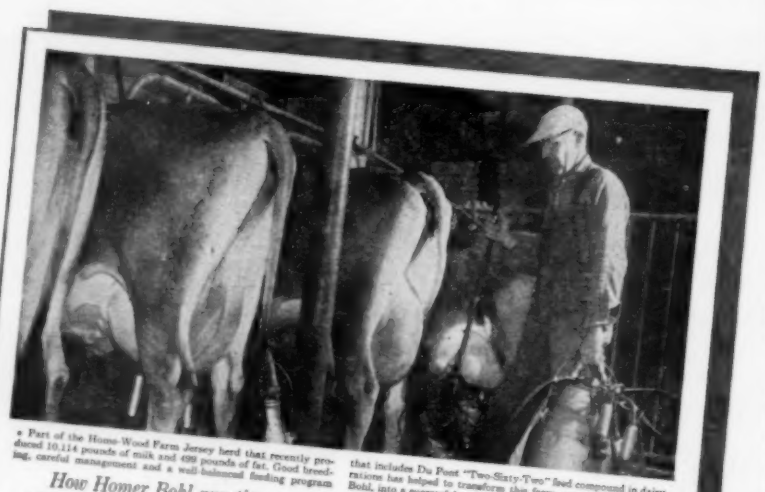

• Part of the Home-Wood Farm Jersey herd that recently produced 10,114 pounds of milk and 499 pounds of fat. Good breeding, careful management and a well-balanced feeding program that includes Du Pont "Two-Sixty-Two" feed compound in dairy rations has helped to transform this farm, owned by Homer C. Bohl, into a successful and profitable operation.

How Homer Bohl practices

Successful dairying at Home-Wood

Twenty-five years ago, Homer Bohl purchased a run-down and unproductive 90-acre farm at Route 1, New Vienna, Ohio. Today those same 90 acres in Highland County, known as Home-Wood Jersey Farm, provide Mr. Bohl with a profitable living and carry all the livestock he can handle. In 1951, he received the Cleveland Farmers' Club Restoration Award.

Mr. Bohl's herd now totals 48 head of purebred Jerseys, with 30 cows in milk. The herd average over a five-year period through 1955 was 9,863 lbs. milk, 464 lbs. fat. In 1956, 19 cows averaged 10,114 lbs. milk, 499 lbs. fat. 28 classified females averaged 86.25% with 2 excellent, 18 very good, 7 Good Plus and 1 Good. Mr. Bohl has also proven two bulls, both of which are serving thousands of Jersey dairymen through artificial insemination.

The successful program of Homer Bohl is based on a high roughage system. Hay is fed free choice the year round; when the cows are on pasture, hay is kept in bunks. Between pasture seasons 15 lbs. of grass silage per day are fed. The grain mixture is 1,200 lbs. corn, 600 lbs. oats and 350 lbs. of a dairy ration containing Du Pont "Two-Sixty-Two" feed compound, a top-quality urea source of protein. In dairy feeds, "Two-Sixty-Two" not only provides an efficient source of protein, but also helps unlock extra nutritive values in stimulating rumen bacteria which break down feed fibers in roughage.

As Homer Bohl has done, ask your feed supplier to include Du Pont Two-Sixty-Two® in your dairy supplements.

• Homer Bohl practices grassland farming, and has farm furnishes all the pasture, hay, silage and oats for his herd of purebred Jerseys. He purchases corn and a dairy ration which contains Du Pont "Two-Sixty-Two"—the first and finest urea source of protein.

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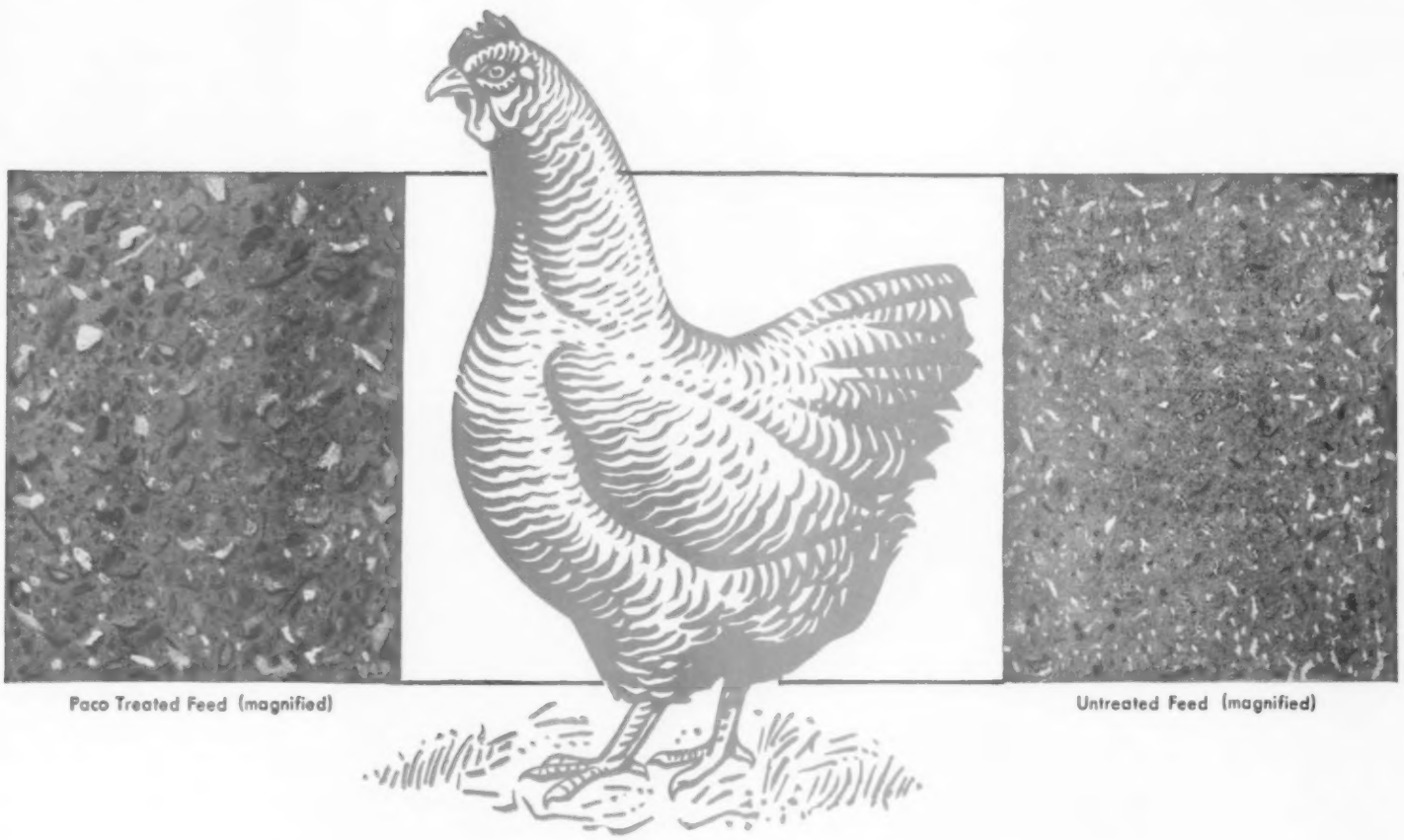

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By Dr. D. H. LeGear
Dr. LeGear, Inc.

EDITOR'S NOTE: Dr. D. H. LeGear of Dr. LeGear, Inc., St. Louis, was one of a group of farm industry leaders from the U.S. who toured Russia as well as other European countries this past summer. In the accompanying article, Dr. LeGear presents some of his observations on agriculture in the Soviet Union. For one thing, he points out that a feed industry such as that in the U.S. does not exist in the U.S.S.R.

v v

If you ever have an opportunity, as I did this past summer, to tour the agricultural areas of the Soviet Union, I wouldn't advise trying to find this Russian feed man named Ivan Petrovich. I searched for 5,000 miles, from the outskirts of Leningrad to the vast plains of the Ukraine, and couldn't find any feed man. They just don't exist. The feed industry as we know it in this country has no place in the scheme of things in Russian agriculture today.

My trip through the Soviet Union was made possible through a kind invitation to join 23 other farm industry leaders on a semi-official good-will tour. Our trip was in return for a similar trip through our Midwest by a group of Russian farm leaders last year. Our group traveled a total of 18,000 miles across northern Europe, into the Soviet Union and back out by way of Berlin. We saw Russia as few tourists have, beginning in Leningrad, traveling to Minsk, Moscow, Kiev, Kharkov and some smaller cities, and visiting both Russian state and collective farms. We learned a lot about Russian agriculture, and the Russian people. We found that many phases of agriculture that we consider mighty important, have no counterpart in Soviet farming. Principal among these is the feed business.

Dr. D. H. LeGear

Open Range Grazing

The feeding of livestock seems to be carried on much as it was in our country around the turn of the century with open range grazing providing the principal part of the animal's nutrition.

The hogs we saw in Russia were kept on range constantly. Herdsmen (more often women than not) kept a constant watch in three shifts per day since there are no fences in most of Russia. One herd we saw had been turned out to clean up the remnants of a wheat field. Russian farm leaders told us that they are trying to develop a "meat-type" strain of hogs such as we see now in our Midwest, but all the hogs we saw in Russia were the large lard-type animals, much like those we knew 20 years ago. While we saw no indication of how hogs were fed in the winter, we assume they are given a daily ration of some sort of silage, and perhaps a little grain.

Dairy cattle also make wide use of open range grazing. Dairy cattle are milked either two or three times a day in most of the areas we saw, and are fed a ration of what the Russians call "fodder" at each milking. We saw a legume similar to alfalfa, some hay, and some grain being given to the dairy cattle in the dairy barns. There was no indication of the mash feeds or processed grains that are so familiar in an American dairy operation. Indications of feed additives were few and far between, and apparently they have little usage in Russia.

Cattle Breeds

There are no beef breeds as such, so far as we could learn. The Russians make use of many Brown Swiss, Holsteins and Guernseys in their dairying, and have developed several strains of their own for use as dual purpose dairy and beef breeds. One of the most spectacular of these is the huge Lededinskaaya, a cross between the Brown Swiss and the Russian Grey Ukrainian. This impressive animal weighs in at about 1,600 to 1,700 lb. Another native species is the Simental, also a huge animal,

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weighing as much as the Lededinskaaya. We saw one strictly dairy animal of Russian origin. It weighed about 1,270 lb. and is called the Red Steppe.

None of our group saw any evidence of an organized poultry program in Russia. There are obviously chickens being raised, because we were served chicken several times during our trip. But we saw only two birds during the entire 5,000 miles we traveled in Russia. We were told that each member of the collective farm is allowed to own up to an acre of land and that he can keep chickens on this plot of land. This is apparently the extent of the Soviet poultry industry, and the feeding of these birds, from all appearances, is limited to what the birds can forage for themselves, plus a little grain from each family's small private supply.

Little Mixed Feed

Only at one of the huge state farms, did we see any evidence of mixed feed as we know it. We found a rather small, but apparently complete, feed mill on a state farm near Kharkov. We were told that the mill was built to serve only the animals on the state farm, which in Russia is used as an experimental farm. We found mixers and bins set up to bag or sack feed. However, in the Soviet Union they do not use the feed bags so familiar to us. They use anything that happens to be handy, including old barrels and cardboard boxes. During our stay at the state farm, we also found an alfalfa dehydrating plant. We were surprised, however, to learn that after the alfalfa had been dehydrated, it was stored in the open sheds or fields. Incidentally, we saw very few of the familiar tall round silos in Russia. They do use a lot of the open trench silos which American farmers have been experimenting with in recent years.

The Russians told us that they did add minerals to their feeds on the state farm, and we found a few small containers of what appeared to be ground bone meal, or ground limestone, to bear out their statement. Apparently, however, their animals do not receive any protein concentrates. We also found a mill for adding vitamins and antibiotics to their feed at the state farm. We were told that they added only water soluble vitamins and antibiotics to their dry feed, and this was stored for some time before use, so much of the value of the additives was lost in the process.

During a subsequent visit to the Soviet Research Institute in Moscow, we were told that little emphasis was being placed on the stimulation of growth by antibiotics. One scientist inferred that the Russians preferred the "natural way" of doing things. This then was the Russian feed industry as we saw it this summer. As for Ivan Petrovich, that mythical counterpart of the American feed man—he just simply doesn't exist. If he did, he would find few Russians who would have any idea what he was talking about when he started selling American style processed feeds.

RANGE FEEDING TRIALS

MADERA, CAL.—The U.S. Forest Service's California forest and range experiment station plans a comparison of three grazing management systems on annual foothill range over an eight-year period. The studies will be conducted at the U.S. Department of Agriculture's San Joaquin Experiment Range. The efficiency of the systems will be judged from the performance of breeding cows and the response of the range to different kinds of management.

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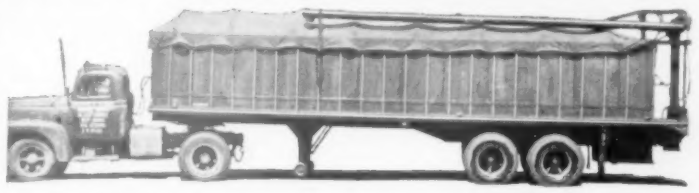

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FEED

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FARM BUILDINGS

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G-AN-EN *adds both*

- *important milk nutrients*
- *extra nose appeal*

It's quick! It's easy! It's profitable! Just a 5% ratio of G-AN-EN improves any ordinary mix formula with appetizing flavor dogs can't resist . . . and vital food values dogs need for sturdy growth.

G-AN-EN is a concentration of all these ingredients in handy dry form: dried whole whey, dried buttermilk, torula dried yeast, brewers' dried yeast, cheese rinds, sulphates of iron, zinc and copper, manganese chloride, niacin, vitamin A and D feeding oil (stability-improved).

ALL THESE EXTRA FOOD VALUES ARE CONTAINED IN G-AN-EN:

6 VITAMINS—vitamins A, D_2, B_{12}, riboflavin, niacin, and pantothenic acid.

6 MINERALS—valuable milk minerals, calcium and phosphorus, *plus* the mineral salts of copper, iron, zinc and manganese chloride.

MILK PROTEIN—The milk protein in G-AN-EN contains all the essential amino acids in the milk proteins lactalbumin and casein.

You'll find G-AN-EN is quick and easy to blend. It's packed in 50-lb. bags. Start today to improve your mixes this easy way.

G-AN-EN *is a Kraft product* *Order from* KRAFT FOODS
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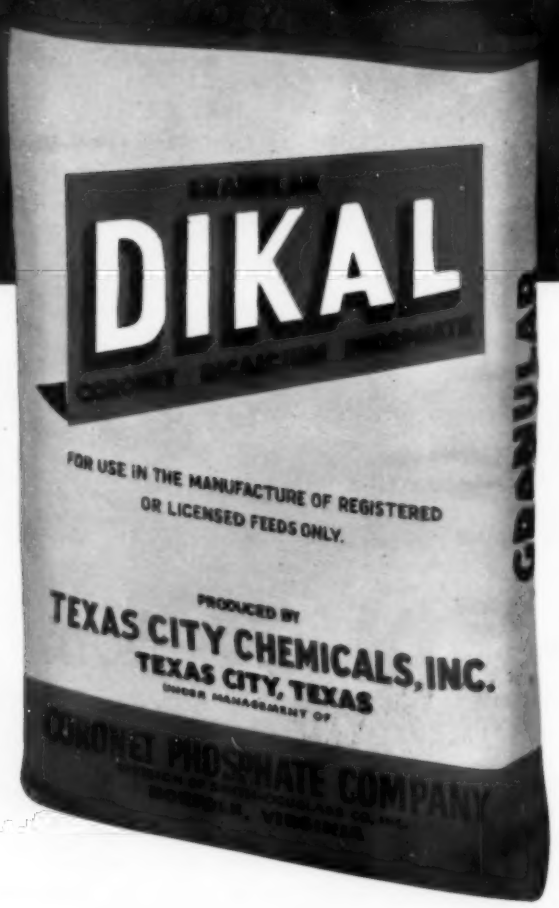
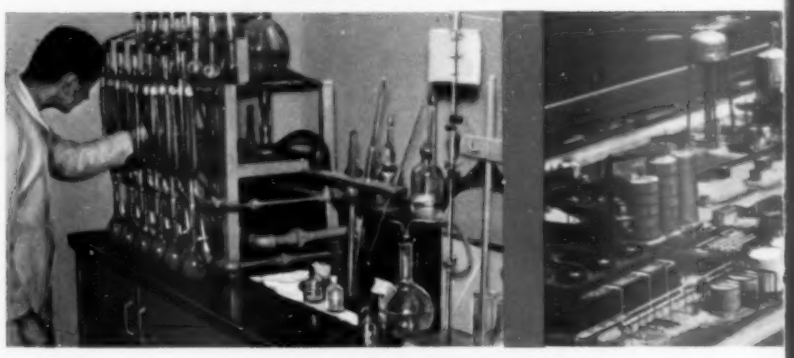


RESEARCH



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with Higher
Dicalcium Phosphate Levels

FEEDING TRIALS PROVE BENEFITS

Rations supplemented with higher dicalcium phosphate levels produced faster liveweight gains and more efficient feed utilization in a series of cattle feeding tests at State Agricultural Experiment Stations.

IOWA STATE[1]

Tests conducted by Iowa State College researchers indicate cattle receiving higher dicalcium phosphate rations graded higher at slaughter and returned greater margins over feed costs. The Iowa State report concludes . . . in some cases a higher level of total ration phosphorus, possibly as high as 0.3 percent, may well be needed.

PURDUE[2]

According to a study conducted by Purdue University researchers, raising the phosphorus level in a corn-soy ration from 0.30 to 0.45 per cent improved rate of gain 29% and feed efficiency 6.6% when fed to growing swine on ladino pasture. A further increase in phosphorus to 0.60% improved feed efficiency 5.7%, but failed to stimulate gains further.

Several pigs on the corn-soy basal ration exhibited borderline phosphorus deficiency symptoms.

SOUTH CAROLINA[3]

An animal deficient in phosphorus from either hereditary genetic defects, or because of prior consumption of a low phosphorus ration may bloat, regardless of the level of nutrition in the feed crop. Therefore, a critical phosphorus deficiency in ruminants should be corrected through feeding of dicalcium phosphate or other mineral phosphates or by feeding high phosphorus concentrated feeds prior to being placed on luscious legume pastures.

TEXAS[4]

In feeding trials on the King Ranch in Texas, cows fed supplemental phosphorus weaned 39% more calves, averaging 50 pounds more weight per calf. In addition, feed lot operators in the Southwest have discovered that higher phosphorus levels result in faster gains.

USE MORE CORONET GRANULAR DIKAL IN YOUR FEEDS

1. Different Kinds and Amounts of Phosphorus in Fattening Cattle Rations. Agricultural Extension Service A. H. Leaflet 209. Iowa State College. Wise Burroughs, Arthur Raun, Edmund Cheng, C. C. Culbertson.
2. Phosphorus and Protein Levels for Growing-Finishing Swine on Legume Pasture. A. H. 215. Purdue University. C. E. Jordan, J. H. Conrad, M. P. Plumlee, W. M. Beeson.
3. Relation of Phosphorus Deficiency to Acute Bloat in Ruminants. H. P. Cooper, 69th Annual Report South Carolina Agricultural Experiment Station, Clemson, S. C., May, 1957.
4. Methods of Supplying Phosphorus to Range Cattle in South Texas. Texas Agricultural Experiment Station Bulletin 773. E. B. Reynolds, J. M. Jones, H. H. Jones, J. F. Fudge and R. J. Kleberg, Jr.

QUALITY

CORONET GRANULAR DIKAL, produced under meticulous and carefully controlled manufacturing conditions at this modern facility in Texas City, Texas . . . is a highly available source of phosphorus.

SERVICE

CORONET GRANULAR DIKAL assures a constant supply when you want it . . . in any desired quantity. Feed manufacturers enjoy faster, more dependable service from Texas City . . . the ONLY feed grade dicalcium production point west of the Mississippi River.

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CORONET GRANULAR DIKAL eliminates annoying dust in bagged or bulk shipments. Additionally, Granular Dikal improves dispersion because of similarity in particle size to other feed components.

Let us figure the cost of DIKAL delivered to your plant

DIKAL
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CORONET PHOSPHATE COMPANY
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A Division of **Smith-Douglass Company,** Incorporated

P/S This Sign of PROMPT SERVICE

Means more than just quick shipment from our Memphis warehouse stocks of leading vitamins, antibiotics, growth factors and minerals. It means Personal Service, too, in helping with formulation, registration and in other ways when our customers need it. Call us.

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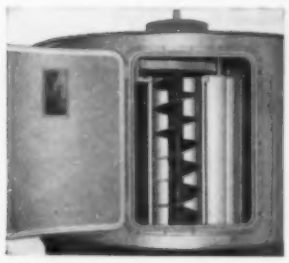
BROWER *Whirlwind* **MIXER**

Dependability, fast mixing action, and low cost operation make Brower the WORLD'S LARGEST SELLING MIXER! Brower action WHIRLS the ingredients instead of just stirring or tumbling them . . . produces the most thorough mix you can get. Every sack has the same even mixture.

FAST and ECONOMICAL—a perfect blend in about 10 minutes at a power cost of only 3¢ to 5¢ a ton. Five sizes—700, 1200, 2000, 3000 and 4000 pounds-per-batch mixing capacities. Above-floor and below-floor models. Heavy welded steel construction—built for years of trouble-free service.



Interior readily accessible through large hinged service door and hinged conveyor sleeve.

Notice the mixing paddle at top which WHIRLS the ingredients for the most thorough mix.

Glass observation window at eye level provides easy inspection of mixed feed at any time.

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World's Largest Selling Mixer

USDA Announces Bin Unloader for Materials That Cake

WASHINGTON — Livestock feeds and grains that tend to cake in storage are easily handled by a new bin unloader developed cooperatively by engineers of the U.S. Department of Agriculture and the Illinois Agricultural Experiment Station, according to a USDA report.

The device is designed to maintain a steady flow of feed from flat-bottom storage bins through automatic feed-handling systems by breaking up materials that become lumpy and compact in storage. Flat-bottom bins —which have the advantage of low cost—and even bins fitted with hopper bottoms frequently require manual labor to remove lumped or caked materials, it was noted.

Hoyle B. Puckett, USDA's Agricultural Research Service, designed the unloader, and was aided in its development by Illinois experiment station engineers. ARS has applied for a public patent on the device.

Meant for use mainly in round, corrugated steel bins 14 ft. in diameter, the electrically-operated unloader employs two augers (screw-conveyors) of the type commonly used for loading and unloading grain.

How It Works

Inside the bin is an open auger which revolves at 150 rpm a fraction of an inch above the surface of the bin floor. One end is pivoted at the center of the floor, and the auger sweeps around the bin counter-clockwise.

This application of the auger keeps it in contact with stored material in the bin so that it breaks up caked portions, USDA said. The revolving, screw-conveyor motion of the auger carries the loosened material to a hopper located at the center of the bin.

Once in the hopper, the loose material is carried to a discharge point by the second auger which is enclosed in a housing and revolves at 100 rpm. Both augers are operated by separate one half horsepower electric motors.

The machine can be made to operate under completely automatic control. The discharge auger carries away stored material as it flows, by gravity, through the hopper. The sweep auger is set in motion automatically when the hopper is not kept full by gravity flow. Both augers will stop automatically when the desired quantity of material has been removed from the bin.

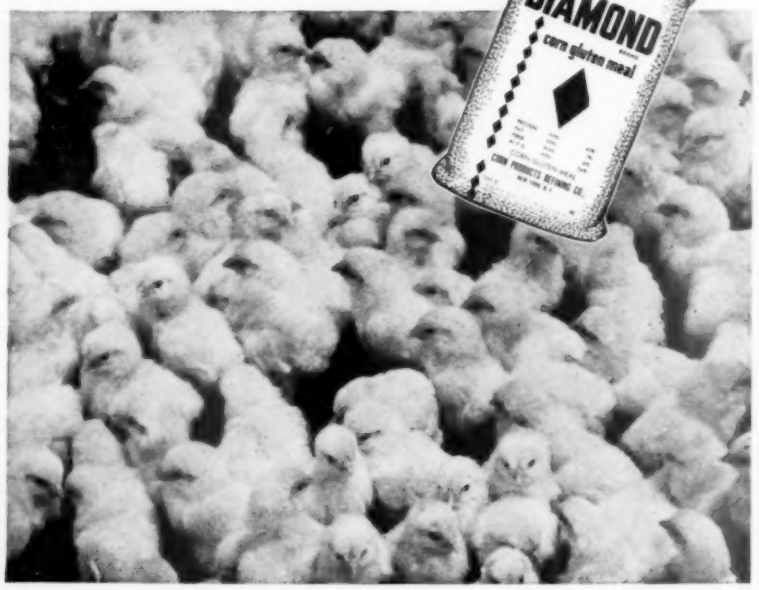
The sweep auger is kept in contact with the stored material by torque (force) applied by the vertical drive shaft. This force can be varied by adjusting a dragbrake attached to the auger. When tightened, the brake increases the torque and makes the auger press harder against the stored material.

This new bin unloader was purposely designed for low capacity to meet the needs of most automatic livestock feeding systems, USDA said. It is intended for use in bins from which feed and other materials are frequently withdrawn. In tests it has moved 22,000 lb. of shelled corn, or 18,000 lb. of soybean oil meal per hour. This capacity can be increased by using larger motors and augers.

APPOINTMENTS ANNOUNCED

MATHIS, TEXAS — Jimmy Wall has been named sales manager and Bennie Curtis assistant manager of the Mathis Grain & Elevator Corp., announced Warren LeBourveau, general manager. Other changes found Carroll Borden taking over as foreman of the feed mill and W. D. Jones being named bookkeeper.

HIGH IN PIGMENTATION...



Diamond® Corn Gluten Meal has no equal in pigmentation. That is why men who know poultry feeds and feeding have been using this popular, widely-used meal for years.

CORN PRODUCTS SALES COMPANY
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THE HIPPO

Because he lives a life serene
Never are his haunches lean.
The only problem for the Hippo
Is a scale that he can't tip-o.

AN ENORMOUS RESULT FROM A RELAXED LIFE

How to relax, conserve energy and amass weight is a hippopotamus' secret unknown to the chicken. ■ LIPAMONE, the only poultry feed additive producing hormone-like results, has a built-in calming effect on broiler and roaster flocks. ■ Growers report birds on LIPAMONE are quieter, less given to cannibalism and pile-ups. Some growers have even stopped debeaking.* ■ LIPAMONE's in-the-feed action offers finer finish, better bloom, best fat distribution, excellent weights and feed conversion, and greater carcass uniformity. *Names and facts supplied upon request.

economical.....no labor costs
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LIPONETTE "the 24-carat brand"

Control of Flies Through Feeds

Certain chemicals in laying rations show promise in control of flies in laying cages

By J. H. Quisenberry, C. B. Ryan and M. A. Price
Texas A&M College

EDITOR'S NOTE: As this experiment station report points out, considerably more information needs to be gathered before general recommendations can be made concerning the use of chemicals in laying rations to control flies, but that preliminary research results show promise. Dr. Quisenberry is head of the poultry science department at Texas A&M, Prof. Ryan is an assistant professor in the same department, and Prof. Price is in the Texas A&M department of entomology.

Fly control is a universal problem in most poultry laying cage operations and at some seasons of the year may be a real problem on other poultry and livestock farms. Present methods of control are rarely completely satisfactory and are relatively costly.

An effective larvacide that could be added to the ration and would not be toxic to the animal would offer a great deal of promise as a satisfactory means of fly control. Using this approach, preliminary trials were conducted with two chemicals in laying cage rations during the summer of 1957. Two experiments were conducted.

Materials and Methods

In the first experiment, 36 White Leghorn hens were divided into 12 groups of three birds each. Two groups served as controls. Five groups were fed varying levels of Trolene (O, O-Dimethyl-O-(2, 4, 5-Trichlorophenyl) Phosphorothioate) and five groups were fed varying levels of Polybor 3 (Disodium Octaborate Tetrahydrate) mixed in the laying ration.

The birds were housed in two 3-deck laying cage batteries located in one end of a conventional cage house with maximum exposure to flies. Wax paper was placed in the dropping pans to facilitate collecting the manure. The droppings were collected every 3½ days. The manure from each three birds was weighed and placed in a one gallon ice cream container covered with screen wire or plastic mesh. The containers were stored in open shelves that were constructed in the cage laying house, and the flies were counted two weeks after the collections were made.

Records were kept of feed consumption, egg production and mortality.

In the second experiment, Trolene was dropped from the test and two replicates of three birds each were fed varying amounts of Polybor 3 mixed in the feed. A conventional 18% protein cage layer ration, containing 0, 3, 4, 5, 6 and 8 lb. of Polybor 3 per ton, was fed to these replicated lots. The same collection procedure for the droppings used in the first experiment was followed.

TABLE 1. Effects of Feeding Varying Levels of Trolene in the Laying Mash on Fly Control

Lots	No. of birds	Lb. of feed consumed	Mg. of Trolene per lb. of feed	Total mg. of Trolene consumed for 44 days	No. of gm. of Trolene per day	Flies per lb. of droppings
1	3	37	0.0	0.0	.00000	234
2	3	35	58.0	2030	.04614	492
3	3	38	116.0	4408	.10018	462
4	3	39	180.5	7039.5	.15999	591
5	3	36	202.3	7282.8	.16552	656
6	3	37	243.0	8991	.20434	392

TABLE 2. Effects of Feeding Varying Levels of Polybor 3 in the Laying Mash on Fly Control (Experiment 1) Collections for Six Weeks

Lot	Lb. of feed consumed	Lb. of Polybor 3 per ton of feed	Gm. of Polybor 3 consumed, 3 birds	Gm. of Polybor 3 consumed per day, 3 birds	Flies per lb. of droppings
1	38	0.0	0.0	0.0	522
2	36	0.5	4.070	.0925	168
3	35	1.0	7.942	.1805	452
4	35	1.5	11.876	.2699	260
5	33	3.0	22.453	.5103	190
6	31	6.0	42.192	.9589	3

Results

The results of feeding Trolene in the first experiment are shown in Table 1.

The use of Trolene at the levels shown in Table 1 did not control house-flies. The fly population insecticide actually increased, probably because of wetter droppings in these groups. The results of feeding Polybor 3 in the first experiment are shown in Table 2.

Six pounds of Polybor 3 mixed with the laying ration gave very satisfactory control. Lower levels also

TABLE 3. Effects of Feeding Varying Levels of Polybor 3 in the Laying Mash on Fly Control, Collections for Three Weeks

Lot	Lb. of feed consumed	Lb. of Polybor 3 per ton of feed	Gm. of Polybor 3 consumed, 3 birds	Gm. of Polybor 3 consumed per day, 3 birds	Flies per lb. of droppings
			Replicate 1		
1	19	0	0.0	0.0	289
2	16	3	10.796	0.7398	13
3	14	4	12.712	0.6356	10
4	13	5	14.755	0.7377	2
5	15	6	20.430	1.0215	3
6	19	8	34.504	1.7250	2
			Replicate 2		
1	9	0	0.0	0.0	336
2	15	3	10.215	0.5107	8
3	15	4	13.620	0.6810	1
4	18	5	20.430	1.0215	4
5	14	6	19.068	0.9534	8
6	7	8	12.712	0.6356	7

CHECKERBOARD GRAIN COMPANY
Buyers and Sellers of
MILLFEEDS, GRAINS AND GRAIN PRODUCTS
CHICAGO KANSAS CITY ST. LOUIS MINNEAPOLIS

MR. DEALER:
Show your customers how they can sell ALL their milk using
CALVITA
CALF FORMULA
...and you too will
POCKET
the
PROFIT

COMPARE the cost of feeding
CALVITA with whole milk feeding!

Just a few seconds
... is all it takes to "FIGURE THE DIFFERENCE"
Fill in the blank spaces with current prices in your locality—

420 lbs. whole milk @ $_____ per CWT $_____
25 lb. carton of CALVITA costs $_____
Here's the difference per calf $_____

POCKET the PROFIT!

EASY MIXING · STAYS IN SUSPENSION · GOOD TASTING

Sell CALVITA the original milk replacer proven for over 10 years

NATIONAL VITAMIN PRODUCTS CO.
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Hello-o-o-o, Everybody!

here's the

HESS & CLARK JAMBOREE

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RED FOLEY

Singin' and Sellin' for Hess & Clark
(and you, too)

FUN AND MUSIC

Every Saturday on the MONITOR **NBC Radio Network**

"America's Favorite Country Music Man" is on the Hess & Clark team now! You can hear him every Saturday on NBC-MONITOR radio . . . coast-to-coast network of stations. Here's a down-to-earth show that millions of folks enjoy . . . good music, some hearty chuckles, and top-rated guest stars.

Red's singing for Hess & Clark . . . and for you, too. Be sure you tell your customers about this great entertainment . . . and be sure to feature nf-180 for increased egg production, Pen-FZ for mastitis, Bifuran for preventing coccidiosis, and Warfarat for positive rat and mouse control. Tie in with "Ol' Red" and increase your profits this fall and winter.

RF-1-8

Featuring

nf-180®
furazolidone

for: improved egg production, lower feed cost per dozen; disease control in swine, broilers, turkeys, and rabbits.

for: effective mastitis control — with special "buy-now" merchandising.

for effective rat and mouse control on the farm and in the home . . . exclusive A. P. L. Guaranteed.

bifuran

for effective coccidiosis control, solid lifetime immunity; non-toxic — prevents many secondary infections.

HESS & CLARK INC.

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Leaders in new products and ideas for more profitable livestock and poultry

M-C GRAIN DRYER
CONTINUOUS
COMPARE!
There's Nothing like it
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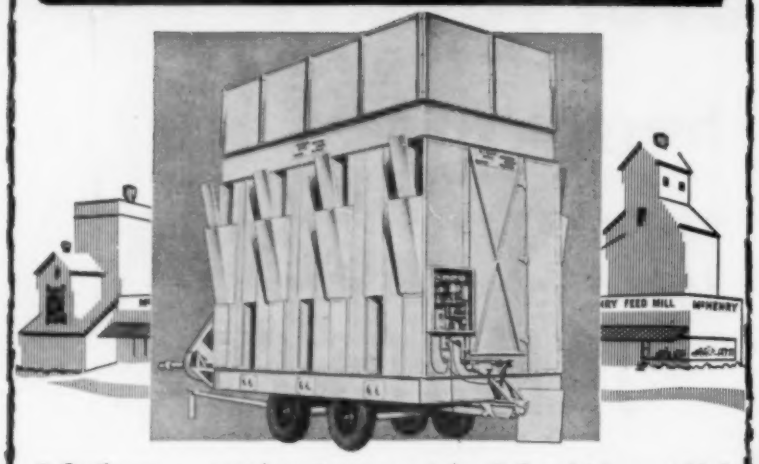

• Continuous . . . goes in wet; comes out dry. • Completely assembled Grain Dryer. • Portable, requires very little installation expense. • Strong! Holds 20 tons of grain. • Capacity up to 268 bu. per hour. • 15 H.P. electric motor. • LP or natural gas. • Quiet for "in town" use. • Minneapolis-Honeywell temp. and safety controls. • Can't plug, grind or crack grain. • Dries all grains, beans and rice. • Can be put in operation for less than ½ the cost of other continuous dryers of same capacity. • Serviced by National Distributing Organization.

Makes grain drying easier than ever! No batches; just simple, continuous drying. An M-C Grain Dryer at your elevator will do a better job of quality drying. Here's a grain dryer that *really* improves grain quality with no heat damage—no kernel checks or cracks. These are some of the features only available in the M-C Grain Dryer.

MATHEWS COMPANY
CRYSTAL LAKE, ILLINOIS

Stonemo Introduces Another Fine Product
to Increase Poultry Profits!

It's
Sta-Kleen
NESTING
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1. Coats and dehydrates droppings
2. Keeps eggs clean
3. Reduces egg breakage
4. Assures higher quality eggs

Sta-Kleen is nationally advertised to help you build volume fast. It's a needed product that will give you repeat business with a good margin of profit.

Sta-Kleen comes to you in 50 lb. multiwall bags, and may be purchased with your requirements of Stonemo Granite Grit. For prices and further facts write—

STONE MOUNTAIN GRIT CO., INC.
Lithonia, Georgia

TABLE 4. Boron in Eggs and Tissues of Birds Receiving Varying Levels of Polybor 3 in the Laying Ration*

Lot	Lb. of Polybor 3 per ton of feed	Boron storage in tissues, average parts per million		
		Muscle	Liver	Eggs
1	0	.085	2.0	1.35
2	3	.065	3.4	1.95
3	4	.060	3.3	1.65
4	5	.075	4.2	2.35
5	6	.060	4.0	2.05
6	8	.055	4.1	2.75

*Acknowledgment is made to J. R. Couch, Mrs. Marcia Stasney and Mrs. Edna Mae Poston for the chemical analysis of the eggs and tissues.

indicated some measure of control. Since there was quite a difference in fly control between the 3- and the 6-lb. level of Polybor 3, the second experiment used levels of Polybor from 3 to 6 lb. per ton, with an 8-lb. level to check for toxicity.

The results of the second experiment are presented in Table 3.

Table 3 indicates that all levels of Polybor 3 used gave good fly control. In this experiment, 3 lb. gave much better control than this level in experiment 1. This might have been due to less general fly exposure since the second experiment was conducted during the latter part of August and early September.

Preliminary reports of analyses of eggs and tissues of birds receiving varying levels of Polybor 3 in the laying ration are given in Table 4.

It is obvious from Table 4 that negligible quantities of boron are found in the muscle tissues of these birds. Although increased quantities of boron are found in the liver and eggs, the levels do not appear high enough to be of importance to the consumer of these products.

Summary

These preliminary results suggest that this new method of fly control in cage layer plants has considerable promise.

Additional data on fly control and information on egg production, feed consumption, additional data on the potential deposition of the chemical in the eggs and meat, potential boron toxicity to plants fertilized by the droppings and effects on the birds over extended periods should be obtained before general recommendations concerning the use of Polybor can be made.

Other larvacidal chemicals also should be tested as they become available from the manufacturer.

Petitions Request ICC To Vacate Suspension

MEMPHIS—Separate petitions have been filed by the railroads and the Mid-South Soybean & Grain Shippers Assn. with the Interstate Commerce Commission, asking vacation of the Division 2 suspension of decreased export rate under Investigation & Suspension 7008.

The trade here said also that Ezra Taft Benson, secretary of agriculture, has made a request for vacation of the suspension. The Secretary, it was said, pointed out that all help possible is needed to enable the U.S. to compete abroad.

Involved are tariffs naming 18¢ and 20¢ on soybeans to New Orleans for export.

The lower rates were about to go in when, at the last minute, Division 2 refused to permit them to be used. The trade here said this was done at the behest of two grain shippers that have elevators on the river and seven barge lines.

On the other side, they said, are seven railroads, 300 grain shippers, and thousands of Mid-South farmers.

New Installations of Machinery Continue

A report from the Prater Pulverizer Co., Chicago, provides further evidence of the continuing increase in modernization and building of feed mills throughout the country.

The report tells of some 90 recent new machinery installations in 19 different states. The equipment includes Prater grinding, mixing, conveying and other machinery.

The states where the new installations were reported include Illinois, Indiana, Michigan, Wisconsin, Washington, Missouri, Ohio, California, Florida, South Dakota, Pennsylvania, Oregon, Arkansas, Georgia, Iowa, North Carolina, Minnesota, Colorado and Mississippi.

Yes!
He's looking for some of your dog food made with our complete dog food cereals

★ TOASTED CORN FLAKES
★ TOASTED WHEAT FLAKES
★ CORN GRANULES
★ KIBBLED CORN
★ KIBBLED WHEAT
★ KIBBLED PREMIXES
(Straight or Mixed Shipments)

Carloads — Truckloads — LCL — LTL

LAUHOFF GRAIN COMPANY
PHONE 1800
Cereals of Quality Since 1862
Danville, Illinois
TELETYPE 8261

Feed Dealer Finds Valuable Ad Copy in Weight Gain Records

"We don't say our feed will put on so much gain within a certain time. Instead, we tell a farmer what our line has done for his neighbors."

By Warren B. Smith
Feedstuffs Special Writer

"There's nothing like a record of customer's livestock weight gains for advertising copy." That's a belief expressed firmly by Marvin Barenthin, owner and operator of Barenthin Feed & Produce Co., Bennett, Iowa.

Mr. Barenthin began weight record keeping earlier this year. "It's sure worth the effort," he says. "It gives us hard-hitting copy for our newspaper advertising." Elaborating further, he said the records have also provided the firm with substantial sales talks.

IOWA FEED FIRM—This is Barenthin Feed & Produce Co., Bennett, Iowa, which has found valuable advertising copy in weight records of customers' livestock. Marvin Barenthin, company owner, said, "We were like everyone else. We were saying our line was best, but we weren't offering actual evidence."

"Now we don't say our feed will put on so much gain within a certain time. Instead, we tell the farmer what our line has done for his neighbor. It's there in black and white in the book. Should a customer doubt the figures, he can easily check with the farmer in question."

Mr. Barenthin entered the weight program because "we were just like everyone else. We were saying our line was best, but we weren't offering proof."

Now there is proof in Barenthin advertising. Space is purchased in the local weekly newspaper for advertisements which usually run three to four columns in size. In addition, the same advertisement is published concurrently in a more widely-circulated county newspaper.

Use of Photos

A typical advertisement will be illustrated with pictures of the farmer and his livestock. Copy consists primarily of meaty facts and figures. Readers are shown amount of gain, rate of gain, over-all cost, cost per pound, and the like. This advertising is substantial fare for any cost-conscious livestock producer.

Pictures are handled by arrangement with the newspaper. Mr. Baren-

BINGMAN'S Animal Health Products

Less Mastitis — Higher Milk Production — More Profits

new approach to Herd Health

Results of tests using
BINGMAN'S P-17

During this test period herds were fed BINGMAN'S P-17, one tablespoonful morning and night, mixed in each cow's feed.*

	FIRST TEST			SECOND TEST (in 60 days*)			
Herds Tested	Quarters Tested	Clear	Infld.	Quarters Tested	Clear	Infld.	Percent Cleared
A.	32	21	11	28	28	0	100%
B.	95	76	19	112	108	4	79%
C.	80	34	46	68	55	13	72%
D.	68	52	16	68	64	4	78%
E.	74	38	36	79	72	7	81%
F.	83	69	14	78	76	2	85%
G.	60	34	26	44	39	5	81%
H.	36	27	9	28	26	2	77%
I.	16	11	5	16	15	1	80%
J.	32	16	16	28	25	3	81%
K.	48	41	7	60	59	1	86%
	624	419	205	609	567	42	79.5%

INDICATION OF SEVERITY OF INFECTION

Degree	1st Test	2nd Test
Slight	94	30
Infected (Mastitis)	66	9
Chronic (Mastitis)	45	3
Total	205	42

BINGMAN'S P-17
WHEN FED AS DIRECTED P-17
Aids in Control of MASTITIS
Aids in Reduction of SCOURS
Aids in Prevention or Treatment of FOOT ROT
Aids in Reduction of RESPIRATORY INFECTIONS

ASK ABOUT BINGMAN'S P-17 GUARANTEED FEEDING PROGRAM!

BINGMAN LABORATORIES, INC.
Subsidiary of S & H LABORATORIES, Inc., CALDWELL, OHIO
Note: Sales representatives wanted in many good areas. Write for details.

CHAIN REACTION
with your buying
—Dollars—

One call, to any one office, and you set 4 companies to work to help you buy what you need, when you need it

D.C.A. & Co.
1202 Board of Trade
Chicago 4, Illinois
Tel.—WAbash 2-0028
Teletype—CG 1188

Save Buying Dollars

T.D.F. Co.
Corn Exchange Bldg.
Buffalo, New York
Tel.—Madison 2323
Teletype—BU 484

Harris-Crane, Inc.
221 So. Church Street
Charlotte, North Carolina
Tel.—EDison 2-6145
Teletype—CE 164

Charles J. Koelsch Grain Co., Inc.
209 Grain & Flour Exchange
Boston 9, Massachusetts
Tel.—Hancock 6-3115
Teletype—BS 587

We are linked together to give you better service in all commodities. Our nationwide coverage, with private leased wires connecting all offices, assures prompt, efficient brokerage service. Try us on your next transaction.

BROKERS IN FEED INGREDIENTS

You can MAKE
Healthy Profits
SELLING Sta-Kleen
NESTING MATERIAL

Now you can sell at a good margin of profit a badly needed repeat item. It's Sta-Kleen, a rare natural clay nesting material that gives poultrymen more clean eggs and fewer broken ones.

This remarkable product quickly coats droppings, dehydrates them, reduces egg shell soil up to 80%.

Write for prices and literature. Address:
STONE MOUNTAIN GRIT COMPANY, INC., Lithonia, Georgia

Sta-Kleen ...another fine product to increase poultry profits

FEED DEALERS—
There's a ready market and year 'round demand for salt and minerals. Keep plenty of BARTON salt on hand. Available in bags or blocks . . . plain or mineralized.
THE BARTON SALT COMPANY

When your formula calls for trace minerals, there's no easier, surer, less expensive way to provide them than to include BARTON Trace Mineral Salt. BARTON salts flow freely, mix readily and provide the level of mineral supplementation you need. The BARTON blend of pure evaporated salt, manganese, iron, cobalt, calcium, copper and iodine provide the "Hidden Value" that gives your formula the extra margin of performance.

2

The salt cellar of America

to Increase Milk Production Up to 20%

USE RUFIS®

SUPER BIO CONCENTRATE

Get increased conversion on Beef Cattle on regular feeds and be able to feed more roughage for better gains at lower cost!

RUFIS Super Bio Concentrate contains all Natural Rumen Bacteria, Enzymes and B Vitamins. It contains no cultures or synthetics.

RUFIS Super Bio Concentrate can be pelleted. It does not have to be dusted on the pellets.

Each shipment of RUFIS Super Bio Concentrate is biologically tested in a laboratory to assure you it contains no pathogenes or harmful bacteria. There is only one RUFIS Super Bio Concentrate. It is protected by Patent No. 2,560,830.

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1211 West 44th Street
Denver 11, Colorado
LOUISVILLE
4007 Crittenden Drive
Louisville 9, Kentucky
MILWAUKEE
1100 So. Barclay Street
Milwaukee 4, Wisconsin
MINNEAPOLIS
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60 East 42nd Street
New York 17, New York
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South Norwalk, Conn.

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MERCHANTS CHEMICAL CO., INC.
605 Leavenworth St., Omaha, Nebr.

Name_____ Title_____

Firm Name_____

Address_____

City_____ State_____

FIND ADVERTISING VALUABLE TOOL—Barenthin Feed & Produce Co., Bennett, Iowa, is keeping records of weight gains among customers using feed sold by the Iowa firm and has found the results to be good advertising copy. The results, run in local newspaper advertising along with pictures of the farmer and livestock being tested, make ad copy "the farmer will read and believe," according to Marvin Barenthin, left, owner and operator. In the center of the photo is Harold Weih, salesman for the firm. Mr. Weih keeps the records. At right is Mrs. Barenthin, who manages the office, pointing out some of the firm's advertising.

thin says these illustrations, of a local nature, add considerably to readership of his advertisement.

The firm, which handles Purina products, periodically advertises in newspapers on the fringe of its trade area. "We figure our trade area covers a 20-mile radius," Mr. Barenthin says. "Through this extra coverage, we're able to drum up additional feed sales as well as further work for our portable mill." The firm has a Daffin portable mill and grinder for field work.

"We purchased a Ranger portable scale for weighing," Harold Weih, salesman for the firm, says. "I spend approximately one day each week weighing and compiling records."

At present, the firm is keeping track of gains on livestock of six customers. Records are compiled monthly on approximately 450 hogs. Further figures are gathered on cattle.

Customers Cooperate

"It's not too much trouble doing it," Mr. Weih says. "Our customers are most cooperative. It gives them a chance to see in black and white what their feed program is doing."

Mr. Barenthin has owned and managed the business for the past six years. Before that, he worked for the previous owner. Besides Mr. Barenthin, the staff includes Mr. Weih who assists in operation of the business, and Mrs. Barenthin, in charge of office and bookkeeping duties.

Mr. Barenthin, a tall, lean man with suntanned features, says he feels newspapers constitute the feed dealer's best advertising buy. "But we don't underestimate other media," he says.

He uses billboards to supplement newspapers. "It's hard to trace results from billboard advertising," he says with a grin. "Yet I feel they're there nevertheless." The billboards are located on the main highway approaching the community, informing motorists of products handled and services offered.

Recently, the firm joined with other Purina dealers in sponsorship of television programs. "One thing about television," Mr. Barenthin says, "it's still so new that people remember when your ad message appears."

Along with the Purina line, Mr. Barenthin also handles a number of animal health products and farm chemicals. "Naturally, we concentrate on feed," he says, "but when a product is in the store you can't help but make sales."

$100,000 Fire Loss

GALVESTON, IND. — Losses estimated at between $100,000 and $150,000 were sustained in a fire here recently which leveled the Bahler Grain Co. elevator and destroyed 6,000 bu. soybeans, 600 bu. corn and 4,000 bu. oats stored in the structure along with 2,000 bu. soybeans in a freight car on a railroad siding.

Planning a new mill or elevator?
KELLY DUPLEX can help you.

Maybe you've been thinking about a new mill—a new addition—or a new machine. Then again, maybe you've just been wondering how you can get MORE from your present space.

Whatever it is, we would like to talk to you about it.

We've shown a lot of others how good machinery and good planning can do wonders for their capacity, their efficiency, and their profits — at COMMON SENSE COST. The chances are we can do the same for you.

Don't hesitate to send us the coupon. There will be NO obligation—and NO high pressure salesmanship. We don't do business that way.

The Duplex Mill & Mfg. Co., Springfield, Ohio
We would like to talk to you about planning.
We're interested in_____

NAME_____

FIRM_____

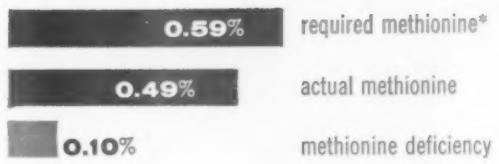
ADDRESS_____

TURKEY FEED MANUFACTURERS

For top feed efficiency be sure your formulations contain sufficient Hydan trademark

STARTER RATION

Corn	45.0%
Soybean oil meal	45.0%
Fish meal	5.0%
Misc.	5.0%

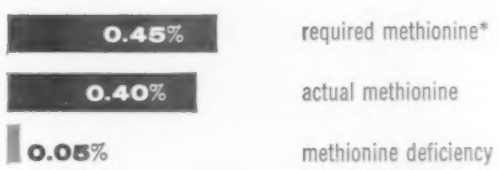


Starter rations need sufficient added Methionine for top feed efficiency

Starter diets containing 30% protein are capable of supporting at least 900 calories of productive energy/lb. However, the combination shown at the left contains only 0.49% methionine, whereas the requirement is 0.59%. The deficiency of 0.10% can be economically corrected by the addition of "Hydan" at the rate of 2 lbs. per ton. Rapid early growth during this critical period requires a completely balanced protein.

GROWER RATION

Corn	61.5%
Soybean oil meal	29.7%
Fish meal	3.8%
Misc.	5.0%

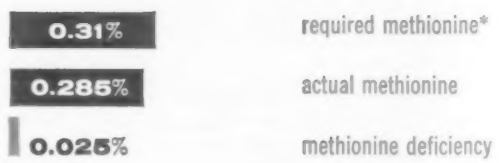


Grower rations need sufficient added Methionine for top feed efficiency

Grower diets of approximately 23% protein will properly balance with energy content in the range of 920 to 1000 cal./lb. depending on stage of growth. The ingredient combination at the left is deficient in methionine by 0.05%—1 lb./ton. The use of "Hydan" to supplement feeds in this important growing period assures maximum rate of growth with high-efficiency diets.

FINISHER RATION

Corn	78.0%
Soybean oil meal	14.5%
Fish meal	2.5%
Misc.	5.0%



Finisher rations need sufficient added Methionine for top feed efficiency

Finisher diets containing a well-balanced protein can be formulated to a calorie/protein ratio of as high as 65/1. The 16% protein mixture shown at the left is only slightly deficient in methionine. For improved utilization of energy content during this period of heavy feed consumption, such mixtures should be supplemented with "Hydan" at the rate of ½ lb./ton.

*Based on a requirement of approximately 2% of protein.

FOR YOUR FORMULATION

Use Du Pont HYDAN . . . the new, lower-cost source of Methionine

"Hydan," the latest achievement of Du Pont research, which pioneered the methionine-energy concept, is a new source of methionine that contains 90% active ingredient and costs substantially less than methionine products previously available. Now the best way to obtain an effective protein in today's turkey rations—at the best possible cost—is to use new "Hydan" as your source of supplemental methionine activity.

"Hydan" is the latest result of Du Pont's continuing research in feedstuffs to help all turkey raisers to boost efficiency, cut costs, and thereby increase profits. Be sure that your feeds contain sufficient methionine. You can get lower-cost "Hydan" by contacting the Grasselli District Office nearest you.

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Hydan trademark
feed supplement

DISTRICT OFFICES: ATLANTA 8, GA., 739 W. Peachtree St. • CLEVELAND 14, OHIO, 1321 National City Bank Building
HOUSTON 25, TEXAS, 1100 E. Holcombe Boulevard • MINNEAPOLIS 2, MINN., 1207 Foshay Tower • PALO ALTO, CALIF., 701 Welch Road
WYNNEWOOD (PHILA.), PA., 308 E. Lancaster Ave. • IN CANADA: Du Pont Company of Canada (1956) Limited, P. O. Box 660, Montreal, Quebec

Clifford Wrolstad Heads Turkey Group

CORVALLIS, ORE. — Clifford Wrolstad, Molalla, was elected president of the Oregon Turkey Improvement Assn. at the organization's recent annual meeting at Oregon State College.

Elected to serve with him were Virginia Menefee, Yamhill, a new director; Price Schroeder, Milwaukie, and Dick Miller, McMinnville, were reelected to the board of directors. Carry-over directors are Loren Johnson, Scappoose; Carlos Johnson, Oregon City; Milton Newport, Tangent, and Mr. Wrolstad. Noel Bennion, extension poultry specialist at Oregon State College, was reelected secretary.

Mrs. A. C. Camp, Sheridan, was elected president of the Turkey Gobblets; Mrs. Milton Newport, Tangent, vice president, and Mrs. Newton Fruit, McMinnville, secretary-treasurer.

The following resolutions were passed at the group's business session:

"1. That Oregon legislation enact regulations to protect the public by requiring that all turkey offered for sale in the state of Oregon be identified with suitable grade labels.

"2. That the board of directors work with the veterinary department at Oregon State College to try to develop a suitable testing program for paratyphoid, either on an experimental or state-wide program.

"3. That the association go on record as favoring the enabling act sponsored by the National Turkey Federation."

CALIFORNIA LEADS IN GARBAGE-FED HOGS

SAN FRANCISCO — On July 31, 1958, California was feeding 195,000 hogs on 315 different premises, and is leading all states in the number of hogs fed on garbage. Not a single hog, however, was receiving uncooked garbage, and 99% of the premises feeding garbage to hogs in California were inspected each month by state officials to see that the garbage was properly cooked and that no vesicular exanthema disease existed. The second ranking state in number of hogs receiving garbage was New Jersey with 157,000 hogs on 300 premises. Massachusetts was in third place with 130,000 hogs on 464 premises. On July 31 there were 1,152,000 garbage-fed hogs in the U.S. on 10,160 premises. Thirty nine thousand of these hogs were eating raw garbage.

Milo in Egg Mashes Cuts Production Costs

STATE COLLEGE, N.M. — New Mexico poultrymen can reduce production costs by use of milo as the grain ingredient in their egg mashes, according to a New Mexico A&M College Agricultural Experiment Station bulletin, "Ground Milo in All-Mash Egg-Laying Rations."

The bulletin is the result of a research project conducted by Prof. L. W. Berry, former head of the poultry husbandry department, now retired.

In most sections of New Mexico, Prof. Berry says, milo can be bought, on the average, for $1 cwt. less than corn.

When milo replaces all yellow corn in an egg mash, an added amount of vitamin A should be supplied from some other source, according to the bulletin.

It points out that because milo lacks yellow pigment, the egg yolks lose their color as the laying season progresses, and finally become almost colorless. This condition can be overcome by increasing the amount of alfalfa leaf meal in the ration, provided it is a high-quality dehydrated leaf meal, or by using some yellow corn meal with the milo meal.

Bulletin 426 may be obtained by writing to the Department of Information, Box 757, New Mexico A&M College, State College, N.M.

NEW LEADER Model L-14S LIME SPREADER

is a high quality rig with a low price tag!

Cut your in-the-field costs with this simple to operate, easy to maintain spreader. Merely set the feedgate opening, start the truck, engage the PTO and start spreading! Material is delivered to the twin spinners over a wide 24" conveyor. Also available with a center dump for stock piling and windrowing.

NEW LEADER *Engine-driven* Spreaders: Model L-52S with 24" conveyor is built for widespread use. Model L-62S with a 30" conveyor is for extra heavy, widespread lime applications. Both spreaders can also be used for fertilizer.

Accurately Blends and Spreads Three Fertilizers At The Same Time!

Now, offer mixed analyses at low, bulk rates!

Three separate feedgates, each with a test box for accurate metering, control the amount of spread. The driver can change the fertilizer ratio for varying soil conditions while in the field! Now, you can spread 3 kinds of fertilizer in one pass through the field . . . whereas, before it took 3 separate trips to do the job! A 7 h.p. gasoline engine drives the twin spinners at a constant rate, regardless of truck speed. The 36" belt-over-chain conveyor is powered from a drive-shaft drive synchronized to truck speed . . . for precise per-acre requirements. Optional equipment meters herbicides and insecticides into the fertilizer . . . spreads all three at once.

A *Powered Flow-Divider* assures even distribution of materials to both spinners, regardless of the position of the L-42S on hillsides or level ground. Customers appreciate this feature as it results in an even crop growth throughout the field.

Model L-19S Combination Spreader With PTO Drive, 24" Conveyor and Twin Spinners Delivers Fast, Uniform Spreads!

Simple operation saves time and upkeep. Just set the feedgate opening . . . start the truck engine . . . engage the PTO . . . start spreading! The body has 45° angle sides to prevent bridging—heavily reinforced to stop warp and twist—extended 6" higher to hold bigger payloads with less blowing.

NEW LEADER *Engine-driven* Combination Spreaders are also available: Model L-22S with a 7.0 h.p. engine and Model L-32S with a 12.5 h.p. engine to deliver plenty of power for heavy applications of lime or fertilizer.

Ask Your Nearest NEW LEADER Distributor for a Demonstration!

ALA.—G. C. Phillips Tractor Co., Inc., Birmingham and Prichard.
ARK.—Truck Eqpt. Co., Fort Smith, Springdale
Southern Eqpt. Co., Little Rock, El Dorado
COLO.—Madren Mfg. Co., Inc., Denver
DEL.—Bohr Spreader Service, Inc., Harrington
FLA.—Henry W. Conibear, Lakeland
G. C. Phillips Tractor Co., Inc., Birmingham and Prichard (Ala.)
GA.—Brooker Truck Eqpt. Co., Atlanta
IDA.—Oscar Bennion, Murray (Utah)
ILL.—D. H. Thomas & Son, Inc., Rockford
Koste Mach. Co., Inc., Robertson (Mo.)
Truck Eqpt. Co., Peoria
IND.—Emmert Trailer Corp., Elkhart
South Side Eqpt. Co., Inc., Indianapolis
Mulzer Brothers, Tell City, Ind.
IOWA—Badger Body Mfg. Co., Omaha
Snyder-Meylor Co., Sheldon
Wendler-Kraus Eqpt. Co., Inc., Cedar Rapids
KANS.—Perfection Truck Eqpt. Co., Wichita
Dealers Body & Eqpt., Kansas City
Perfection Spring & Eqpt., Kansas City
KY.—Mulzer Brothers, Tell City (Ind.)
Md.—Bohr Spreader Service, Inc., Harrington (Del.)
MICH.—Gees Seed & Eqpt. Co., Saginaw
Emmert Trailer Corp., Elkhart (Ind.)
Ostrom-Johnson Co., Rice Lake (Wis.)
Riedy-Manner Truck Eqpt., Toledo (Ohio)
MINN.—Snyder-Meylor Co., Sheldon (Iowa)
Ostrom-Johnson Co., Rice Lake (Wis.)
MISS.—A. P. Lindsey, Distr., Inc., Jackson
MO.—Koste Mach. Co., Inc., Robertson
Dealers Body & Eqpt., Kansas City
Perfection Spring & Eqpt., Kansas City
NEB.—Agrifirst Chem. Corp., Lincoln
Snyder-Meylor Co., Sheldon (Iowa)
NEV.—Lovelock Welding, Lovelock
N.J.—Bohr Spreader Service, Inc., Harrington (Del.)
N.Y.—H. O. Penn Mach. Co., Inc., New York, Westbury, L. I., and Poughkeepsie
Schmitz Sales & Serv., No. Collins
N.C.—O. H. Stanard, Raleigh
N.D.—Snyder-Meylor, Sheldon (Iowa)
OHIO—Orran Hofstetter, Orrville
D. L. Phillips, Damascus
Riedy-Manner Truck Eqpt. Corp., Toledo
Schodorf Truck Body & Eqpt. Co., Columbus
PA.—Annville Body Co., Annville
Ira D. Haines, Waynesburg
D. L. Phillips, Damascus (Ohio)
S.C.—O. H. Stanard, Raleigh (N.C.)
S.D.—Snyder-Meylor Co., Sheldon (Iowa)
TENN.—Tennessee Distr. Co., Donelson
UTAH—Oscar Bennion, Murray
VA.—O. H. Stanard, Raleigh (N.C.)
W. VA.—Farmers' Truck & Impl. Co., Buckhannon
D. L. Phillips, Damascus (Ohio)
WIS.—Brooks Industrial Sales, Inc., Sun Prairie
Ostrom-Johnson Co., Rice Lake

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IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

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"Our Company's Feed Division is moving rapidly to help our dealers seize today's big new opportunities,"

says **ISAAC S. RIGGS,** *Vice President, Feed Sales of The Quaker Oats Company,*

in this report to Independent Feed Dealers

ISAAC S. RIGGS joined The Quaker Oats Company in 1923. A graduate of Iowa State College, he first worked with the noted Dr. O. B. Kent, long-time Quaker Feed Research Director. Advancing through the sales department, "Ike" was named a Quaker Vice President in 1953.

"I want to report to you that The Quaker Oats Company is mighty interested in your future and success in the retail feed business.

"As you know, the changing farm feed market is bringing about a new look in the feed business. What does this mean in regard to your future as an independent feed dealer? The successful feed dealer must expect to do a greater share of his business with fewer—but larger—customers. To satisfy those buyers, he must equip himself to give them the service they demand.

"New and improved Quaker services are actively helping many veteran Ful-O-Pep dealers and new dealers who are continually joining our growing family. Engineering, production, credit, sales training, and research departments of Quaker are constantly helping these independent dealers to meet the changing times. We have a fine feed team. These departments know the feed business, and can help you grow in volume and profits. And we are proud of our well-trained Ful-O-Pep District Representatives. They are prepared to help you expand your facilities, offer more customer services and promote new business.

"Part of our growing service is to bring feed manufacturing facilities closer to you and your feeders. During 1958 we will have completed three new Ful-O-Pep feed mills: Shiremanstown, Pa.—Asheville, N.C.—Jasper, Ala. These are new push-button mills. They are three of a series of small efficient plants set up under Quaker's long-range expansion program. They are designed to provide fresher feeds and faster service to you and your customers at lower cost. These new features will draw big customers to Ful-O-Pep Dealers.

"The Quaker Oats Company foresees sales of manufactured feeds expanding 50 to 80% by 1975. We are moving ahead aggressively to help you cash in on this big opportunity. Join up with Quaker at this time of great growth potentials. We're expanding fast. Let's grow together."

I S Riggs

FUL-O-PEP FEEDS

made by The Quaker Oats Company

We urge Feed Dealers to visit our modern Feed Mills located at: Cedar Rapids, Ia. Memphis, Tenn. • St. Joseph, Mo. • Sherman, Tex. • Shiremanstown, Pa. • Lawrenceburg, Ind. • Chattanooga, Tenn. • Tampa, Fla. • Asheville, N. C. • Jasper, Ala. • Los Angeles, Calif.

Push-Button Pelleting Plant Opens in Oregon

JEFFERSON, ORE. — A modern, flexible push-button pelleting plant is now in full operation here. The firm, called Pelco, is manufacturing complete livestock feed pellets.

Located on the Willamette Flax Products site near here, and owned by the same stockholders, the plant is designed to operate under a continuous flow system. The system includes hay chopping, hay and grain grinding, holding bins for materials, facilities for adding concentrates, minerals, antibiotics, salt and molasses, mixing, pelletizing, cooling, scalping and either sacking or bulk handling of the finished product.

The announcement said the completed pellet contains all nutritional requirements for cattle, sheep and swine. The product is marketed under the name, "Pelco."

President of the company is Harold Fisher, Albany, Ore., and the manager is Monte Weddle, Jefferson.

Construction work on the plant was begun in March by Reid-Strutt Co., Inc., Portland, which was in charge of design, layout and engineering. First test pellets were produced a month ago. Production is now at 25 tons a day, and Mr. Weddle said the plant's capacity of 30 tons daily will soon be reached.

An alfalfa dehydrator is planned in connection with the plant. The Willamette valley, a rather wet area, prohibits sun curing of alfalfa. By providing a dehydrator, Mr. Weddle said, local farmers can add alfalfa to their list of farm crops. At present, there is no other dehydrator in the valley, and supplies of dehydrated hay are shipped in from the Midwest and California, he said.

In designing the new plant, Reid-Strutt engineers paid particular attention to flexibility and push button operation for the purpose of developing low labor and operation costs, the announcement stated.

Hoffman

for complete nutritional service

Hoffman-Taff Inc.

SPRINGFIELD, MISSOURI

10% Tonnage Increase Goal of Wayne Feeds

CHICAGO — Dealers for Wayne Feeds, manufactured by Allied Mills, are aiming at a 10% increase in tonnage during this fall and next spring feeding periods, it was noted in a recent company publication.

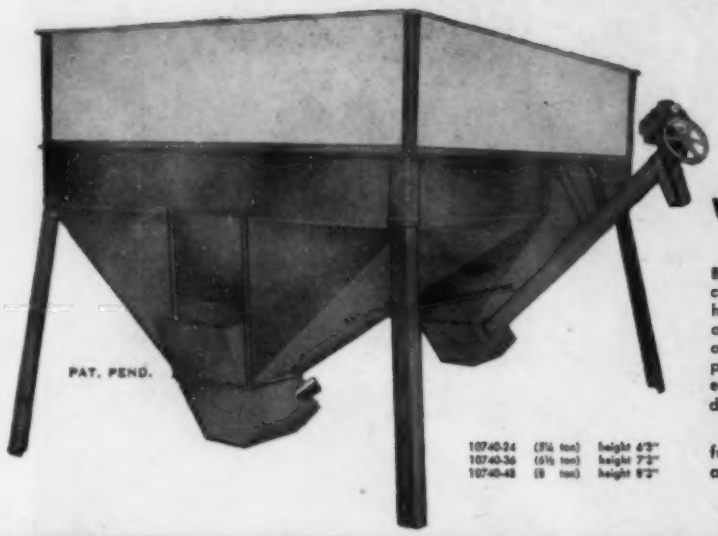
Wayne Feeds officials said there are 10 good reasons why the goal can be reached. John L. Richardson, Allied Mills director of marketing, sent a message to company salesmen recently entitled "10 Reasons for a 10% Increase in 1958-59."

He listed first the fact that the company has recently completed the biggest month, biggest quarter and biggest tonnage year on record. Added to this, he said, is the fact that more livestock and poultry are on farms and the general feeding outlook is good.

The other eight reasons are the company's sales program. It features an egg feed bonus program which offers dealers a bonus of 50¢ ton for every ton of Wayne Egg Feeds sold in September and October, if they ship 100% of their quota, and $1 per ton on every ton if they ship 110% or more of their quota. Also featured are advertising helps and a "mazuma" program which is a reward for total tonnage. The "mazuma" points may be exchanged for merchandise in a prize catalog. "Mazumas" may be gained also for holding feeder meetings, and putting up live egg-laying displays.

Also scheduled are a national advertising program, local merchandising and advertising aids and the promotion of new feeds.

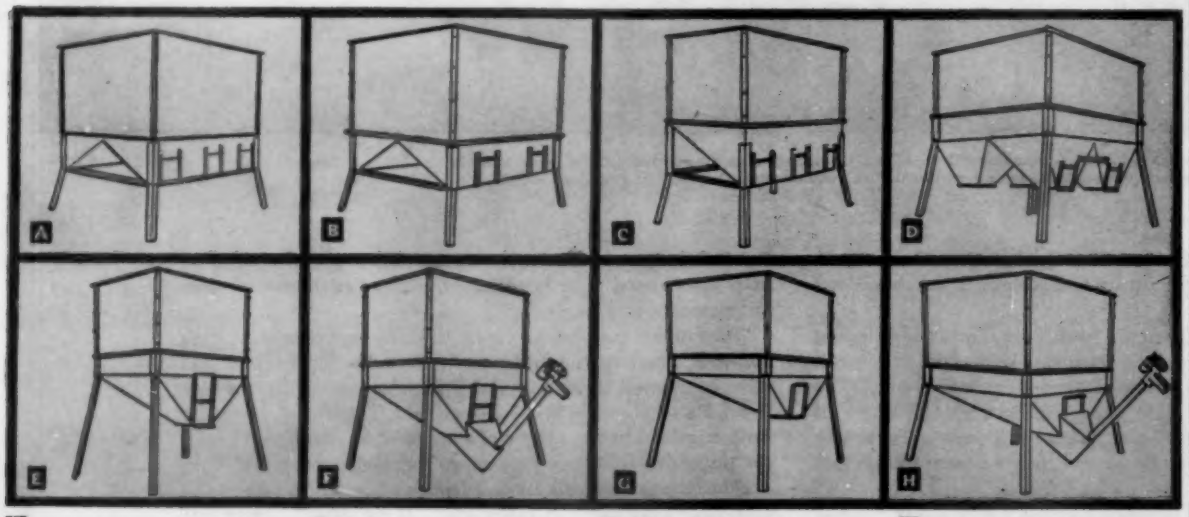
NOW YOU CAN BULK FEED HIGH TONNAGE inside low houses with Lemanco



10740-24 (2¼ ton) height 6'3"
10740-36 (3½ ton) height 7'3"
10740-48 (5 ton) height 8'3"

Because of the trend in the poultry industry to larger capacity houses and mechanical feeding, Lemanco engineers have designed a bin to give inside storage up to eight tons of feed even in areas where head room is limited. The base of this 10740 bin, as shown at left, is built in two compartments. When one compartment is emptied, the auger is easily switched to the other. Two augers are available if desired.

Shown below are other top quality Lemanco bulk feed bins for every feeding purpose. All bins are adaptable for air or auger delivery.



A 7618-48-4D 6 door (4 ton) height 7'0"
Three doors on side make for easy cleanout. Especially desirable for pullet and hen feeding.

E 7540-36O (3¼ ton) height 9'2"
7540-48O (4 ton) height 10'2"
Designed for over automatic feeder where head room is not a problem. If necessary to extend through roof, cover is available or plans furnished to build your own. These bins easily adapted for air delivery.

B 7618-48-4D 4 door (4 ton) height 7'0"
6618-42 4 door (3 ton) height 6'8"
Regular all-purpose 4-door bulk feed bin.

F 7540-36A (3¼ ton) height 8'0"
7540-48A (4 ton) height 9'0"
The large access doors and the pitch of the base make these excellent bins for all feeds.

C 7424-42 (2½ ton) height 7'2"
5424-24 (1½ ton) height 5'6"
Designed for placing against wall or in corners where large capacity not required.

G 7636-36O (4 ton) height 8'6"
7636-48O (5 ton) height 9'6"
These models, (illustrated G and H), are designed for locations where head room is limited but large capacity required.

D 7736-36 (4 ton) height 7'6"
Side doors and bottom draw gates permit complete emptying of any type feed including mash of high fat or high fiber content.

Ity required. Bins are recommended for pellets and crumbles. Due to shallower pitch they are not recommended for mash.

H 7636-36A (4 ton) height 7'0"
7636-48A (5 ton) height 8'0"

SAVE FEED WITH THE Lemanco FEED BARROW . . . and TUBE SCOOP

The Lemanco Feed Barrow, especially designed for the poultry industry, makes the feeding operation easier for any member of the family, young or old. Built of heavy gauge steel and chrome plated handles, it is so balanced that it cannot tip over and spill feed. Carrying capacity 165 pounds. Oilite bearings and dual or single semi-pneumatic wheels. Dual wheels recommended for areas where soft litter used.

Companion piece to the Lemanco Feed Barrow, the Feed Tube Scoop, 9" x 6", weight one pound, designed primarily for filling tube feeders without spillage. Vent holes in bottom permit filling and emptying of scoop without sloughing of feed.

LEACH MANUFACTURING COMPANY
GADSDEN, ALABAMA P. O. Box 1010 — Tel. Liberty 7-5472

Named Assistant V. P. Of Cargo Carriers

MINNEAPOLIS—Donald R. Brandenborg has been named assistant vice president of Cargo Carriers, Inc., transportation subsidiary of Cargill, Inc., Minneapolis.

After joining Cargill in 1937 when 17 years old, Mr. Brandenborg was associated with the company's shipbuilding activities at Port Cargill. He has most recently been traffic merchant for rivers and the Great Lakes.

BOWMAN PRODUCTS

VIANOL
Oil soluble vitamin protector and pigmentation aid.

BoA-S and Bo-A
Stable dry vitamin A products.

BoDEE
Vitamin D-2 or D-3 in dry, oil or water dispersible forms.

BoDEE (Mineral) STABLE VITAMINS D
Vitamin D that will not decompose when combined with minerals.

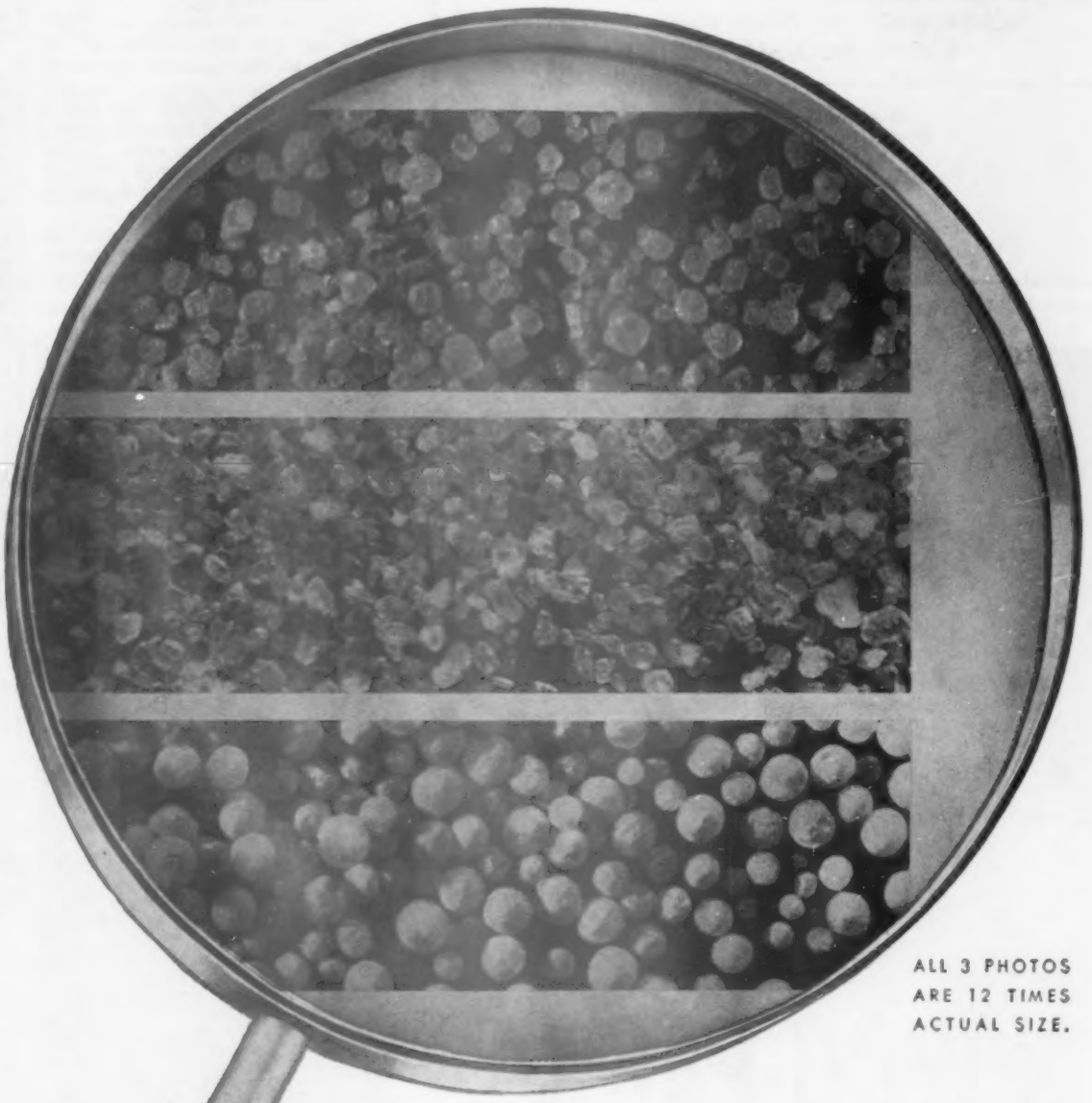
XANTHOPHYLL CONCENTRATES
For better poultry pigmentation.

HYDROPOID
Dry, free-flowing partially hydrogenated animal fat.

CLOROFOLEN
Effective dog food deodorant.

Bowman Feed Products, Inc.
130 Central Ave., HOLLAND, MICH.

See for yourself the *Big Difference*
in Urea Feed Compounds



ALL 3 PHOTOS ARE 12 TIMES ACTUAL SIZE.

Only Grace Urea Feed Compound is *Micro-Prilled**

Smooth • Round • Free-Flowing

Write for complete details.

* Micro-Prilling, an exclusive Grace process, produces a feed compound in the form of tiny balls that are truly free-flowing. Each ball is clay-coated to prevent caking.

- Blends easily in any standard mixing equipment.
- Assures an even, uniform mix throughout.

Grace Chemical Company *A Division of W. R. Grace & Co.*

MEMPHIS—Home Federal Bldg., JAckson 7-1551 • CHICAGO—75 E. Wacker, FRanklin 2-6424
TAMPA—2808 S. MacDill Ave., 82-3531 • NEW YORK—7 Hanover Square, Digby 4-1200

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Memphis Appoints Advisor on Grain, Feed Freight Rates

MEMPHIS, TENN.—J. B. McGinnis, traffic consultant for the Memphis Board of Trade since 1917, has been appointed by the city of Memphis as advisor on grain and feed freight rates. He will continue his position with the board of trade.

Mr. McGinnis' appointment was made by the city commission. He has been working with the city in an unofficial capacity for some time. His job with the city will be to see that Memphis is not discriminated against. Mr. McGinnis, who has offices in the Memphis Cotton Exchange Bldg., is one of the most experienced men in the mid-south in this field.

"The movement of grain into and out of Memphis has become immensely important over the years," said Mayor Edmund Orgill. "We felt it was desirable to employ a recognized expert on grain freight rates to advise the city government when our position is threatened by rate changes."

Before joining the Board of Trade, Mr. McGinnis was with the Illinois Central Railroad as chief clerk of the freight traffic department here. He also served in Louisville and Chicago. He specialized in cotton, cottonseed products, lumber and other southern commodities with the railroad.

Pork Output Shows Increase in August

WASHINGTON — Pork was the only type of red meat showing an increase in production during August over the same month of 1957, the U.S. Department of Agriculture reports.

Pork production for the month totaled 719 million pounds, 4% over a year earlier and 1% over July. The kill for August was 5,437,900 head, 1% over a year earlier and 4% over the previous month.

Production of all red meats in commercial slaughter plants totaled 1,941 million pounds during August, the report said. This was a drop of 7% from the previous August and 3% below July production. Commercial meat production includes slaughter in federally-inspected and other commercial slaughter plants, but excludes farm slaughter.

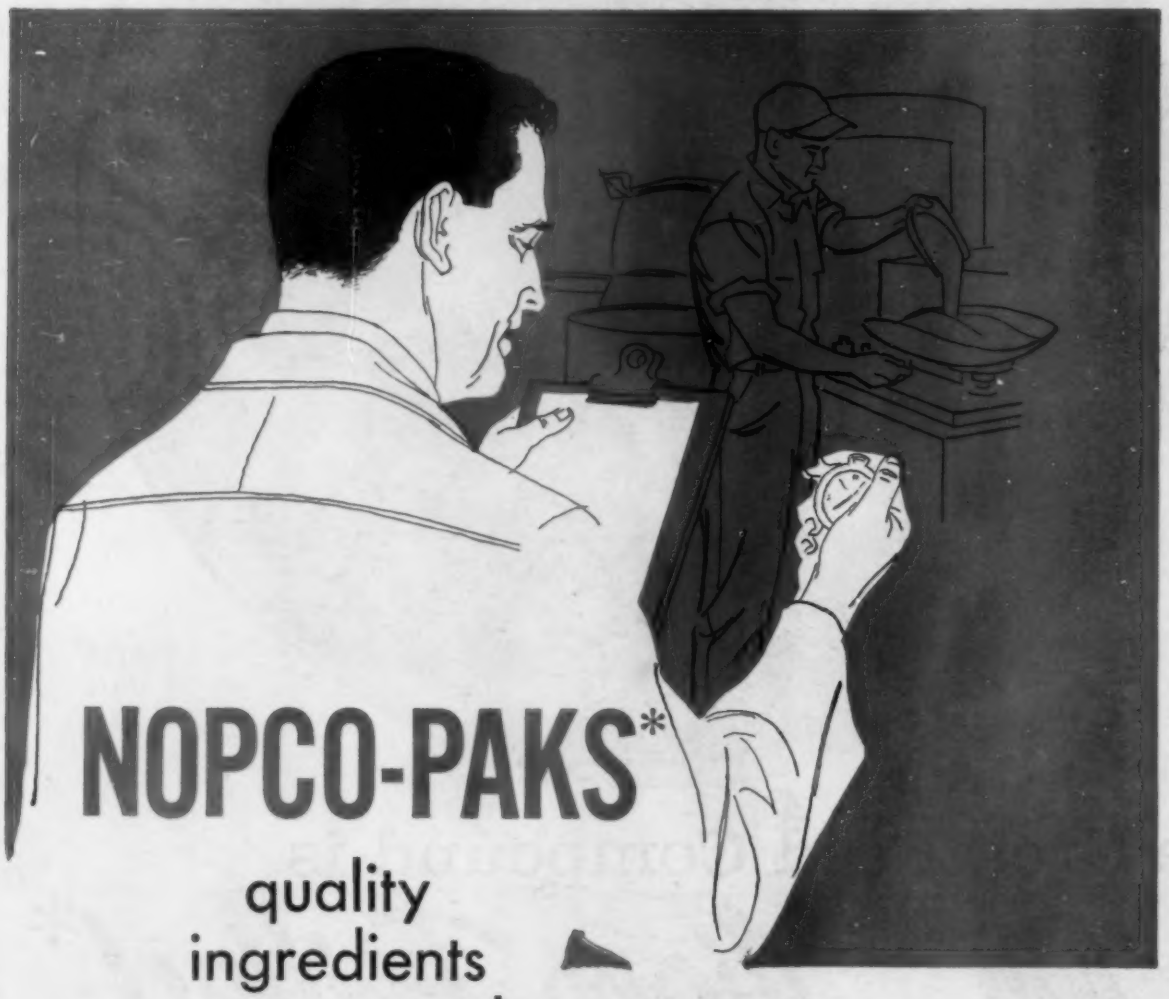
The lower trend in August follows the trend for the first eight months of the year. During the period from January through August, production was off 6% from the corresponding period of 1957. Of the total January-August production, 8,549 million pounds were beef, down 8%; 745 million pounds were veal, down 23%; 6,059 million pounds were pork, down 1%, and 453 million pounds were lamb and mutton, down 4% from 1957.

Production for August compared with August, 1957, shows beef down 10%, veal off 33%, pork production up 4%; lamb and mutton down 11%.

The report shows that poultry slaughter during August was up 24% over the previous August.

New Honegger Dealers

FAIRBURY, ILL. — The following new dealers will handle Honeggers' & Co., Inc., products, the firm announced: The Seed House, Laddonia, Mo.; Ken's Feed Store, Stillman Valley, Ill.; Christy Feed Service, Mason City, Ill.; Farmers Grain & Supply Co., Ulysses, Neb.; Luking Brothers, Connersville, Ind.; Ithaca (Neb.) Egg & Poultry; Farmers Co-Op Elevator, Palmyra, Neb., and Garretson (S.D.) Hatchery.



NOPCO-PAKS*

quality ingredients accurately blended

Nopco-Paks are formulated to give you feed efficiency and blended under the supervision of qualified nutritionists. The mixing operation that has been set up virtually eliminates any chance of human error. The equipment used is of a design and capacity to assure a product of uniformly high quality. Even the length of time that ingredients stay in the mixes is carefully determined so that each batch-sized bag will be an evenly blended premix. These precautions are essential to the production of Nopco-Paks that will provide full potency and assure excellent feed performance.

Blending of Nopco-Paks is done by experts. Why not use Nopco's specially designed facilities to obtain accurate, uniform premixes that deliver the potency you need. Talk to your Nopco representative about your own specially blended Nopco-Pak or write us direct.

**Nopco-Pak is a registered trademark of Nopco Chemical Company*

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General Offices: 60 Park Place, Newark, N.J.
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Basic producers of Micratized® Vitamins A and D, niacin, calcium pantothenate, choline chloride, and other products

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IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

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FEED COMPANY
Brokers
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WAbash 2-7322 TWX 623 Chicago 4, Ill.

6 REASONS WHY THE *Vantress Male* PROGRAM IS BEST FOR YOU!

The Vantress male line breeding program is more important to your operation today than ever before.

The successful operator must have top efficiency all down the line to meet the pressure of narrowing profit margins.

The extra earning capacity of Vantress sired flocks through bred-in superior performance may mean the difference between success or failure in your operation.

Your BEST business insurance is a 100% Vantress Male Program.

1 Present Performance Leader

Chicks sired by Chas. Vantress males perform better in the nation's contests (our entries are field models), also under commercial conditions in the field. They grow better on less feed, live better and are more uniform, meatier, and yield a higher percent.

2 Unequaled Technical Breeding Development Program

Being one of the oldest meat breeding programs in the industry, it was started by Chas. Vantress in 1939. This same continuous progeny testing program with the new pedigree cross-testing program (added in 1954) is constantly at work on new developments for you. We and our customers believe this program will increase our margin of leadership.

3 Organized for Permanency

Chas. Vantress Farms is a permanent organization where the program will be carried on uninterrupted and unadulterated regardless of what happens to any one individual. This breeding team is organized to give you assurance of continuity so you can rely on it.

4 Unequaled Facilities to do a Breeding Job

Consisting of the most advanced type buildings and equipment, our completely modern plant at Duluth provides superb facilities for scientific breeding work to serve the broiler industry's progressive requirements.

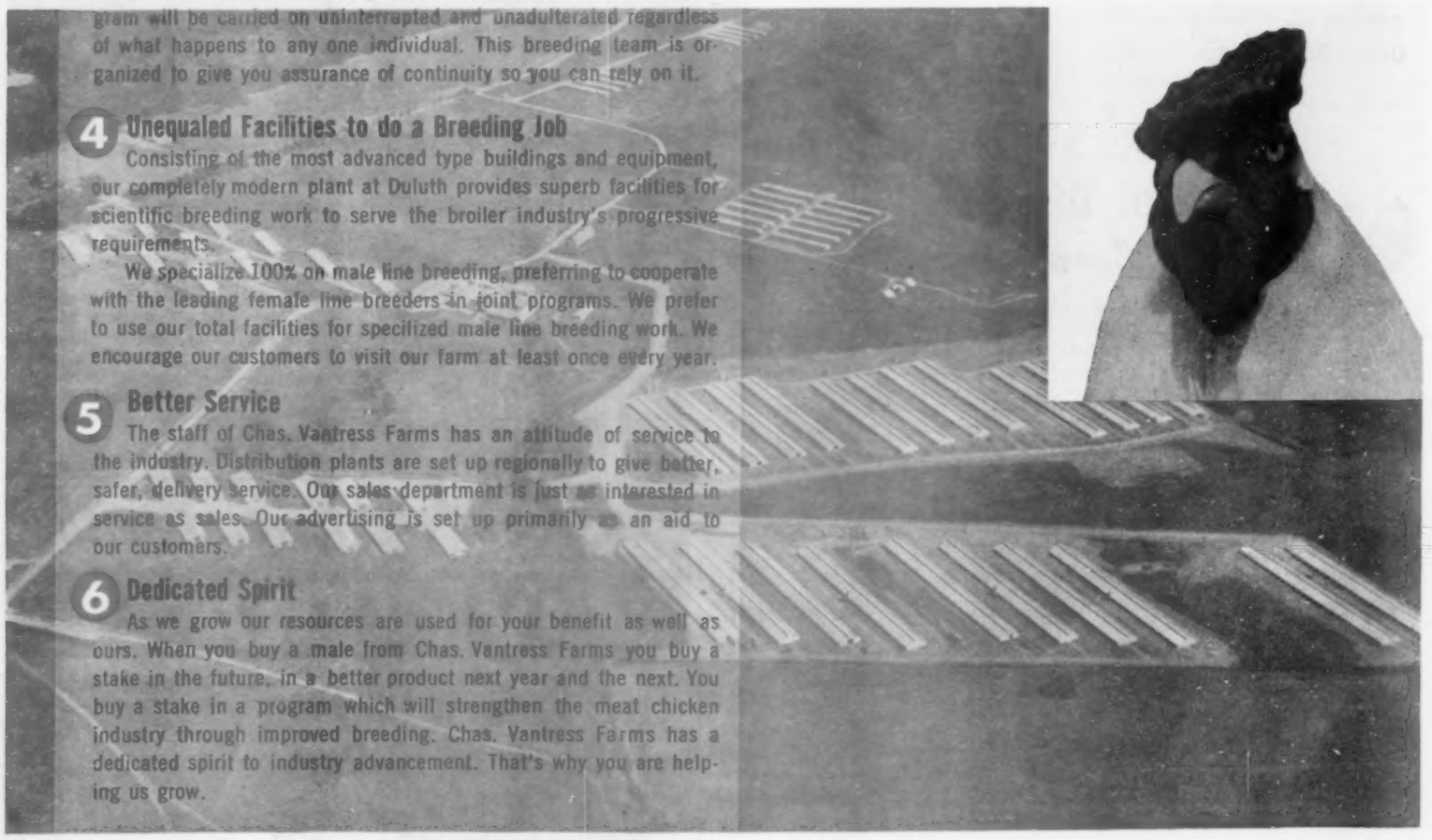
We specialize 100% on male line breeding, preferring to cooperate with the leading female line breeders in joint programs. We prefer to use our total facilities for specilized male line breeding work. We encourage our customers to visit our farm at least once every year.

5 Better Service

The staff of Chas. Vantress Farms has an attitude of service to the industry. Distribution plants are set up regionally to give better, safer, delivery service. Our sales department is just as interested in service as sales. Our advertising is set up primarily as an aid to our customers.

6 Dedicated Spirit

As we grow our resources are used for your benefit as well as ours. When you buy a male from Chas. Vantress Farms you buy a stake in the future, in a better product next year and the next. You buy a stake in a program which will strengthen the meat chicken industry through improved breeding. Chas. Vantress Farms has a dedicated spirit to industry advancement. That's why you are helping us grow.



CHAS. VANTRESS FARMS, INC., DULUTH, GA. — DOMINANT WHITE MALE LINE ®

Chas. Vantress Farms, Inc.

DULUTH, GEORGIA

PILOT BRAND OYSTER SHELL FOR POULTRY

CONSISTENT ADVERTISING

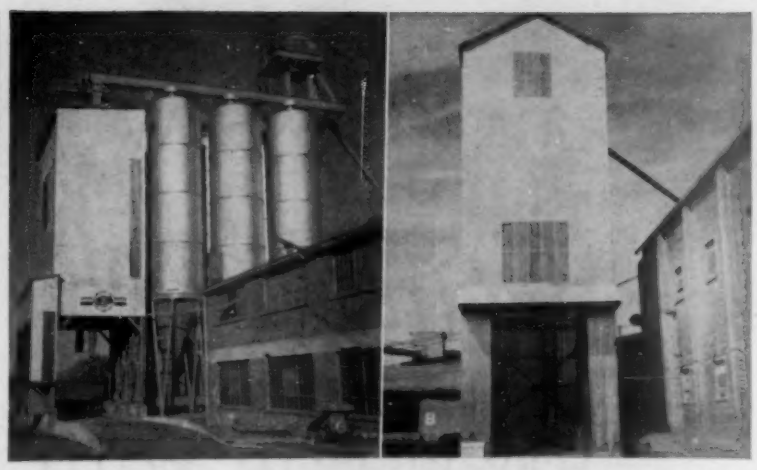
HELPS PULL SALES YOUR WAY

PILOT BRAND is, by far, the most widely advertised eggshell material. PILOT BRAND advertisements appear regularly in leading farm and poultry journals read by thousands of poultry raisers everywhere. In addition, the PILOT BRAND story is regularly being told on more than 70 prominent radio stations.

It is because of this consistent advertising of a tried and proved product, plus the splendid efforts of the many feed dealers who regularly stock and promote PILOT BRAND, that PILOT BRAND Oyster Shell is the largest selling eggshell material in the world. It pays to back a winner.

Order from your distributor or write to us

Oyster Shell Products Company
Mobile, Alabama



BULK EQUIPMENT—Visitors saw the new bulk loading unit (first picture) of the Farm Bureau Milling Co. at the firm's recent open house in Hammond, Ind. The unit is engineered to load trucks with finished feeds at the rate of a ton a minute. Shown in the second picture is a new unit, as yet not completed, for receiving ingredients in bulk. It is expected to cut shipping time by several days when it goes into use in about 30 days.

Farm Bureau Milling Displays Bulk Handling Set-up at Open House

HAMMOND, IND.—New bulk handling facilities were displayed for about 750 feed industry representatives at the three-day open house of the Farm Bureau Milling Co. at Hammond recently.

Visitors viewed a new bulk loading unit which consists of six holding bins and two hopper scales for weighing shipments up to 15 tons from each scale. Total storage of the various finished feeds is 270 tons. The bins are filled during the night shifts and loaded on trucks the following day. A 15-ton load can be loaded in about one eighth the time it previously took, company spokesmen said. The unit is engineered for about a ton a minute.

Also on view was a unit for receiving bulk ingredients, which is still under construction. It is scheduled for completion in about 30 days, and is expected to cut shipping time by several days.

Among the visitors were representatives of county Farm Bureau cooperative retail feed outlets, suppliers of feed ingredients and feed industry acquaintances and associates.

Acting as hosts were Russell Paarlberg, manager; Homer L. Roberts, general superintendent, and F. M. Becker, buyer.

Mr. Paarlberg pointed out that the new equipment, installed at a cost of more than $100,000, will enable the firm to receive bulk feed ingredients by truck and to truck the manufactured feed out in bulk.

Exhibiting Firms

A display of bulk feed trucks, bulk feed holding bins for farm storage, elevating and conveying equipment,

HOSTS—Standing in front of the tents in which visitors were fed barbecued chicken and in which exhibits were housed are the three hosts at the recent Farm Bureau Milling Co. open house at Hammond, Ind. They are Russell Paarlberg (center), manager of the firm; Homer L. Roberts (left), general superintendent, and F. M. Becker, buyer.

HERE'S A DANDY DEAL FOR DEALERS

Everywhere!

Want to make extra profits and at the same time make your customers mighty happy? Yes? Then take a tip from us and stock this popular

BURROWS Light Weight PORTABLE ALUMINUM ELEVATOR

For Ear Corn, Corn, Grain, Feed, Poultry Litter & Many Other Materials

BURROWS EQUIPMENT COMPANY
1316-C Sherman Ave., Evanston, Ill.

Tell us all about your Portable Elevator and deal to dealers.

Name .....

Address .....

It's absolutely tops in elevators of this type. Has many outstanding features that appeal to farmers and poultry men. In active demand the year 'round.

Light weight. Quickly positioned and easily operated by one man. Rugged, durable construction. Rust proof and practically wear proof. A tremendous time, labor and money saver.

16 and 20 ft. lengths. With gas engine or motor, or without either. Immediate delivery.

← Send Coupon NOW.

For complete details. Sell the portable elevator that sells faster and is sure to satisfy.

BURROWS EQUIPMENT COMPANY
1316-C Sherman Ave. Evanston, Ill.

Faster Weight Gains with

BOVEXTRA Live Rumen Organism Mixture

From Range to Full Feed in Only 8 to 12 Days!

BOVEXTRA CONCENTRATE supplies the billions of bacteria which work in the rumen, aiding digestion and turning feed into valuable meat. Add BOVEXTRA CONCENTRATE to your special formula or mix with commercial feed to speed conversion without causing digestive upsets or scouring. Cost just pennies per animal for entire conversion period.

Write for prices

DR. LEGEAR

Packaged in handy 50-lb. bags. Easy to bulk mix or may be sold as a top dressing.

Dr. LeGear, Inc. St. Louis 16, Mo.

and other types of associated items was held in conjunction with the open house. Among the exhibitors were: Kilby Steel Co., Anniston, Ala.; American Planter Co., Burr Oak, Mich.; Burrows Equipment Co., Evanston, Ill.; Gaddis Bros. Mfg. Co., Walford, Iowa; Seedburo Equipment Co., Chicago; Emmert Trailer Corp., Elkhart, Ind.; Hoosier Products Co., Delphi, Ind.; U. E. Fitzpatrick Co., Warsaw, Ind.; Acme Welding & Engineering Co., Hammond; Thoro-Speed Corp., Yellow Springs, Ohio; Dorsey Trailer Co., Elba, Ala.; W. W. Young Trucking Co., Chicago; Manufacturer Aids Co., Chicago; Henderson Manufacturing Co., Cedar Rapids, Iowa; International Machinery Development Corp., Minneapolis; Wenger Mixer Manufacturing Co., Sabetha, Kansas, and Indiana Farm Bureau Cooperative.

Mr. Paarlberg, explaining the firm's expansion into bulk shipping and receiving, said interest is growing in this type of feed handling. For a few years, he said, his bulk shipments ranged around 2% of total volume. However, this year the rate shot up to 7%, and he expects it to grow. The greatest limiting factor, he said, is the ability of dealers to receive in bulk.

Farm Bureau Milling, in its 15th year at Hammond, is an Indiana corporation jointly owned by three state cooperative organizations — Indiana Farm Bureau Cooperative, Indianapolis; Farm Bureau Services, Lansing, Mich., and Wisconsin Farmco Service Cooperative, Madison.

90% Concentrates

Farm Bureau Milling is the feed production unit for the poultry and livestock feeds distributed by the above named stockholders in their respective states. Around 90% of the feeds produced are concentrates. Most of these concentrates are blended with homegrown grains either at the county cooperative retail point or at the farm.

The average production payroll consists of 125 employees, working three shifts. The administrative and clerical payroll averages 25 employees.

1957 Output

During 1957, Farm Bureau Milling manufactured 151,820 tons of mixed feeds. Of this amount 78% was in meal form, and 22% was in pellet and crumble form. A daily average of 595 tons and a monthly average of 12,651 tons was produced, with a man-hour figure of 1.55 per ton, including maintenance labor. Bulk tonnage for 1957 was approximately 5% of the total tonnage, or about 7,500 tons, with 90% in meal form.

During the first eight months of 1958, 116,370 tons of mixed feeds were manufactured. Of this 75% was in meal form, and 26% was in pellet and crumble form. A daily average of 673 tons and a monthly average of 14,546 tons was produced, with a man-hour figure of 1.42 per ton. Bulk tonnage for this period was about 6%, or 7,000 tons. If the company equals the tonnage figures of the last four months of 1957, the manufactured feed tonnage for 1958 should approximate 168,000 tons, or 16,000 tons more than 1957.

Large Supply of Fed Beef Seen

AMES, IOWA — Fed beef supplies will remain relatively large next year, according to Francis Kutish, farm economist at Iowa State College.

Cattlemen are bidding "strong" for replacement cattle this fall, Mr. Kutish pointed out. With present prices for feeder cattle, he said, it's unlikely feeders will make any big profits. It will be mainly a matter of marketing feed, said Mr. Kutish. Some of this feed, such as hay and pasture, has little or no sale value.

In the past few years, the spring and fall price pattern has reversed from year to year, he said. During the current season, slaughter prices were highest in the spring and lower this fall. If the usual reversal pattern occurs in prices next year, cattle prices will be lowest in the spring, Mr. Kutish said.

J. H. LEFTWICH & CO., Inc.

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REACH FOR THE SCHENLEY CORN DISTILLERS DRIED GRAINS, PARDNER!

I wish my folks had known about Schenley Farm Feed Products. I am an almost extinct longhorn steer in the Wichita Mountains. My advice to other animals who do not want to share my fate: Use **SCHENLEY CORN DISTILLERS DRIED GRAINS. They are specially processed to retain all nutritional values, are palatable to the animal, are an established ingredient in dairy feeding, are fairly and realistically priced.**

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CLEANERS and COB BLOWERS
for GRAIN ELEVATORS and FEED MILLS
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GET DETAILS ON *Blue Bonnet*
BEFORE YOU BUY ANY
BULK STORAGE OR FEED TANK

EXCLUSIVE FEATURES!
—Two directional discharge valve

Allows one feed tank to serve two buildings
"V" design valve with lever action cleanout
Rugged construction
Easy loading hatches
Weathertight roofs
Easy add-on units permit capacity increases after erection with most models

See your dealer or write for literature today!
KILBY STEEL COMPANY
ANNISTON, ALABAMA

Drier Installations Show Steady Growth

SAN FRANCISCO — The growing interest in grain drier installations by grain handling firms is indicated in a report that "July, August and September grain drier construction activity at Shanzer Manufacturing Co. has continued at record levels."

A spokesman for the firm said 27 installations were under way within a recent 45-day period in Iowa, Illinois, South Dakota, Mississippi, Tennessee, Kansas, Texas, Indiana, California, Ohio, Minnesota and Mexico. The units range from 300 to 2,500 bu. an hour in capacity.

The manufacturer said most of the units will be employed for corn, soybean and milo drying work, although they can handle other grains if desired.

Give your feeds this pure whey extra:

KRACO

the fresh-dried whole whey that's naturally sweet

- no neutralizers added to upset milk mineral balance
- no fermentation to reduce high lactose content*

**Kraco is guaranteed at least 65% lactose—runs are usually between 70-72%*

When you supplement feeds with Kraco, you are using *pure* whey. Nothing has been added, nothing taken away. In processing Kraco, Kraft safeguards its freshness and sweetness in two vital ways:

1st: The whey from low-acid cheese is used.

2nd: It is dried within hours after it is drawn from the cheese vats. Acid content is guaranteed at not more than 3.5%.

Kraco contains all the whey nutrients, including the valuable whey factor, lactose (minimum 65%), milk protein (12%, mostly lactalbumin), milk minerals and B complex vitamins.

Ask the Kraft Man for full particulars.

KRACO *is a Kraft Product*

Order from
KRAFT FOODS *Div. of National Dairy Products Corp.*
500 Peshtigo Court, Chicago 90, Illinois

It seems this guy who owned a candy store in the Bronx saw a blue flame pass through his shop, heard a crack, and suddenly a genie appeared. The proprietor was frightened at first but relaxed when the genie smiled.

"Who are you?" he asked.

"I'm a genie."

"So what's a genie?"

"Why, I'm a magical person; I came to grant you a wish. Haven't you wished for something all your life!"

"Well, yes, I've always wanted to spend 2 weeks at Grossinger's with my wife and 2 kids, with all expenses paid."

"It's yours," said the genie.

"But who will run the candy store while I'm gone?" asked the proprietor.

"I will," the genie replied, and immediately the delighted owner began telling him . . . "The jelly beans are 3 for a cent—peppermint patties go for 2¢ apiece," etc.

Next morning, while the genie was tying on his apron, the first customer appeared.

"Make me a chocolate malted," said the customer.

"Okay," said the genie, looking up from behind the counter. "You are a chocolate malted."

◆ ◆ ◆

A gushy relative of a pre-teen boy had not visited them for some time and greeted the boy with the standard, "Why, the last time I saw you, you were only so high!" "Yes," the lad agreed, "and you were only so wide."

◆ ◆ ◆

Sign on TV set: "For sale. It's had only one owner—a little old lady with weak eyes."

◆ ◆ ◆

Two fellows met at a bar. "Say," said the first, "what does your wife say when you're out this late?"

"Nothing," replied the other, "I'm not married."

The first fellow pondered for a moment, and asked, "Then why do you stay out this late?"

- Stimulates appetite—adds aroma, taste appeal
- Stabilizes fat-bearing ingredients—guards vital nutrients—helps prevent vitamin deficiency diseases
- Eliminates bitter taste of additives
- Prevents feed off-odors—powerful antioxidant and flavor action

Write for "taste-test" sample

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PRODUCT OF
FLAVOR CORPORATION OF AMERICA
3037 N. Clark Street
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SOLULAC

70% corn distillers solubles
30% corn distillers grains

It's sure to be here every week of the year

Solulac is no fair weather bird. Formulate your feeds with it and feel confident you can get it week after week after week. It's a sure thing, to profit from Solulac's high nutritional values . . . its unidentified growth factors . . . its vitamins. Guaranteed to be free flowing. Production every week of the year — in 50 and 100 pound bags or bulk carloads. Write, wire or phone. Grain Processing Corporation is also a continuous source of corn distillers dried grains.

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Primary Fermentation Products

Riboflavin — Vitamin B-12 — Bacitracin — GP-101, source of whey and other unidentified growth factors.

Worth Looking Into

New Products
New Services
New Literature

This reader service department announces the development of new and improved products, new services and new literature offered by manufacturers and suppliers. Claims made in this department are those of the firm concerned. Use the accompanying coupon to obtain the desired information.

No. 7225—Conveyor Trough

The "Hy-Flow" conveyor, designed to handle a variety of abrasive or non-abrasive materials, has been announced by Screw Conveyor Corp. The unit needs no separate return

strands, is self-cleaning, compact and requires a small amount of power to operate, the company said. The conveyor consists of a standard head section fitted with a shaft, bearings and take-up. The intermediate sections are standard screw conveyor troughing, fitted together in the regular manner. The conveyor is completely enclosed, making it dust tight, the company said. Check No. 7225 on the coupon and mail for details.

No. 7226—Farm Feed Mixer

A portable, farm-size mixer that grinds and mixes any grain or roughage in one operation is being manufactured by Green Isle Manufacturing Co. The unit is adaptable to most makes of mills, the company says, and it allows the farmer to add concentrates and supplements to his own grain on his farm. The unit grinds and mixes at any bin and can be hauled to other bins or feeders for unloading. For details, check No. 7226 on the coupon and drop in the mail.

No. 7229—Liquid Tote Tanks

Tote System, Inc., announced the inclusion of a 300-gal. capacity Tote tank in the "Trial Rental Program" instituted by the firm last spring. The tanks are usable for any liquid material and have eliminated the 55-gal. drum in a number of industrial applications, the company said. For further details, check No. 7229 on the coupon and mail to this publication.

No. 7228—Used Lift Truck Service

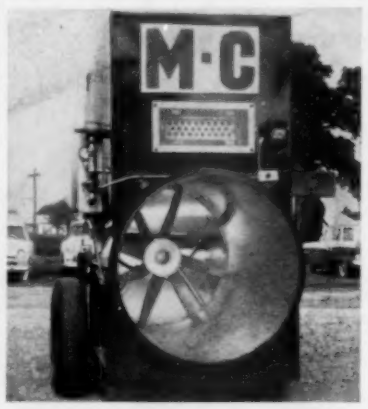
A facility for dealing in used fork lift trucks on a national scale has been established by the Clark Equipment Co. Called the Used Equipment Center, the facility will buy, sell or trade used fork trucks of any type or make. The center will be operated along the lines of a used car lot, the company says. For more details, check No. 7228 on the coupon and mail to this publication.

No. 7227—Animal Health Product

The Dow Chemical Co. has announced the addition of potassium iodine USP crystals to its line of animal health products. The crystals are used as a source of iodine in animal feeds, mineral mixes and in the production of iodized salt and salt blocks, the company said. For more details, check No. 7227 on the coupon and mail to this publication.

No. 7231—Portable Crop Dryer

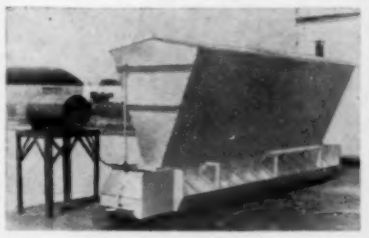
The Mathews Co. announces the marketing of its new model 36 M-C portable crop dryer. The dryer is designed with large air and heat capacity for drying ear corn in cribs



and bins, small grain or baled hay, the company says. The unit comes equipped with the latest in safety and temperature controls, Mathews reports. For more details, check No. 7231 on the coupon and drop in the mail.

No. 7223—Self Feeder

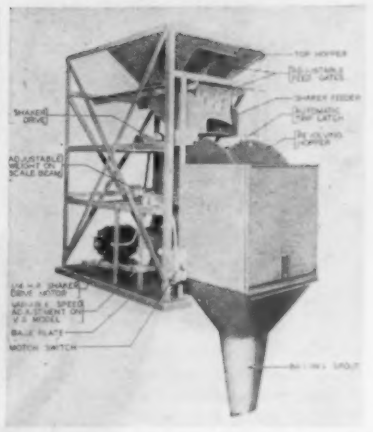
The Baughman Manufacturing Co. announces that it is manufacturing and distributing the Sievers automatic, self-soaking self feeder. The Sievers feeder permits hogs to balance their own ration of soaked,



heated feed, the company says. The unit has a float-controlled automatic waterer which can be used on pressure water systems, wells, ponds or springs and a built-in heater which operates on fuel oil or L.P. gas. For more details, check No. 7223 on the coupon and mail to this publication.

No. 7230—Weighing-Filling Machine

An automatic bench model weighing and filling machine has been announced by the Richardson Scale Co. The new unit, called the Holm model SS weighing and filling machine, provides 18 to 20 weighings per minute of free, semi-free and non-free flowing materials, with maximum capacity of 12½ lb., the company said. The unit is designed as a bench or table

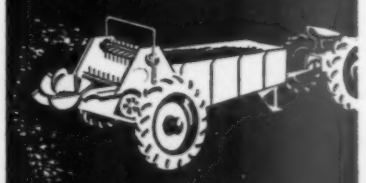


model and consists of an angle iron frame, top feed hopper, motorized agitating feeder, feed regulator plate, revolving three-compartment weigh hopper, 1 to 3 or 1 to 4 ratio weigh beam carried on floating knife edge bearings, adjustable balance, discharge spout and a motor with an eccentric cam. Check No. 7230 on the coupon and mail for details.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 7150—Granular phosphate leaflet, Coronet Phosphate Co.
No. 7151—Automatic bag printer, Industrial Marking Equipment Co.
No. 7152—Settler for bag packers, H. L. Stoker Co.
No. 7153—Bulk storage tank, Butler Manufacturing Co.
No. 7154—Cob bin unloader, Thoro-Speed Corp.
No. 7155—Bulk feed storage tanks, Day Sales Co.
No. 7156—Poultry disease guide, Dr. Salsbury's Laboratories.
No. 7157—Automatic flat drop machine for testing filled multiwall bags, St. Regis Paper Co.
No. 7158—Grain fumigant pump, Tryco Manufacturing Co., Inc.
No. 7159—Pneumatic bulk truck



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- ☐ No. 7225—Conveyor Trough
- ☐ No. 7226—Farm Feed Mixer
- ☐ No. 7227—Animal Health Product
- ☐ No. 7228—Used Lift Truck Service
- ☐ No. 7229—Liquid Tote Tanks
- ☐ No. 7231—Portable Crop Dryer
- ☐ No. 7289—Weighing-Filling Machine

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No. 7161—Bulk feed unit, Seco, Inc.

No. 7162—Basic pneumatic handling systems for bulk materials, Fuller Co.

No. 7163—Literature on buildings, Steel Structures, Inc.

No. 7164—Pneumatic bulk trailer, blending device, Seedburo Equipment Co.

No. 7165—Bagging scale bulletin, Richardson Scale Co.

No. 7166—Grain aeration system, Monroe Grain Aeration Co.

No. 7167—Agricultural films, American Cyanamid Co.

No. 7168—Feed lot automation bulletin, Sprout, Waldron & Co., Inc.

No. 7169—Belt conveyor, Bunke-Musser, Inc.

No. 7170—Bulk delivery body, Dorsey Trailers, Inc.

No. 7171—Collecting systems for hammermills, Sprout, Waldron & Co., Inc.

No. 7172—Bag-bulk delivery body, Dorsey Trailers, Inc.

No. 7173—Pig and poultry feed unit, J. B. Sedberry, Inc.

No. 7174—Industrial fan bulletin, Day Sales Co.

No. 7175—Packaged gas producing equipment, Southwest Industries, Inc.

No. 7176—Rental program for Tote bins, Tote System, Inc.

No. 7177—Poultry feed fortification product, Borden Co.

No. 7178—Automatic tubular water warmer, Smith-Gates Corp.

No. 7179 — Handbook on copy boards, Wagner Sign Service, Inc.

No. 7180—Bulk shipping container, Ohio Boxboard Co.

No. 7181—Steel buildings in color, Stran-Steel Corp.

No. 7182—Grain drying equipment catalog, Aeroglide Corp.

No. 7183—Broiler, layer coccidiostat, American Cyanamid Co.

No. 7184—Four-ton capacity bulk feed bin, Leach Manufacturing Co.

No. 7185—Automatic bag closure literature, Aeroglide Corp.

No. 7186 — Automatic "tare-out" system, Richardson Scale Co.

No. 7187—Bulletin on pneumatic conveyor design, Sprout, Waldron & Co.

No. 7190 — Feeding trial results brochure, Flavor Corporation of America.

No. 7191 — Trough-belt conveyor, Universal Hoist Co.

No. 7192—Grain roller mill, W-W Grinder Corp.

No. 7193—Vacuum barrel handling unit, Vac-U-Lift Co.

No. 7194—Grain fumigator, Seedburo Equipment Co.

No. 7195—Bulk-bag feed body, Henderson Manufacturing Co.

No. 7196 — Fourteen-hole laying nest, Oakes Manufacturing Co.

No. 7197—Peebles' 50-lb. red whey block, Western Condensing Co.

Cites Need for Feed Formula Calculators

RALEIGH, N.C.—North Carolina feed men could save thousands of dollars through the use of electronic computers to determine feed formulas, Dr. Clayton P. Libeau, marketing specialist at North Carolina State College, declared recently.

"Each North Carolina feed dealer or manufacturer may not have enough tonnage or money to justify automatic equipment," Dr. Libeau said, "but collectively, or in an association, they could save thousands of dollars by maintaining a least-feed cost calculation service."

Pointing to the practice of large manufacturers in the use of the calculators to determine the cost of feed when ingredient prices fluctuate, Dr. Libeau said North Carolina feed men could secure this service through a feed dealers' association, or hired by an executive secretary.

PURCHASES FEED STORE

IOWA FALLS, IOWA—Craighton Knau, Iowa Falls, has purchased the Yaw Feed Supply near Iowa Falls and will change the name to Knau Feed & Supply.

PURE REEF OYSTER SHELL IS RECOGNIZED BY THE POULTRY INDUSTRY TO BE THE BEST SOURCE OF CALCIUM FOR POULTRY. THROUGH ITS USE THE POULTRYMAN OBTAINS...

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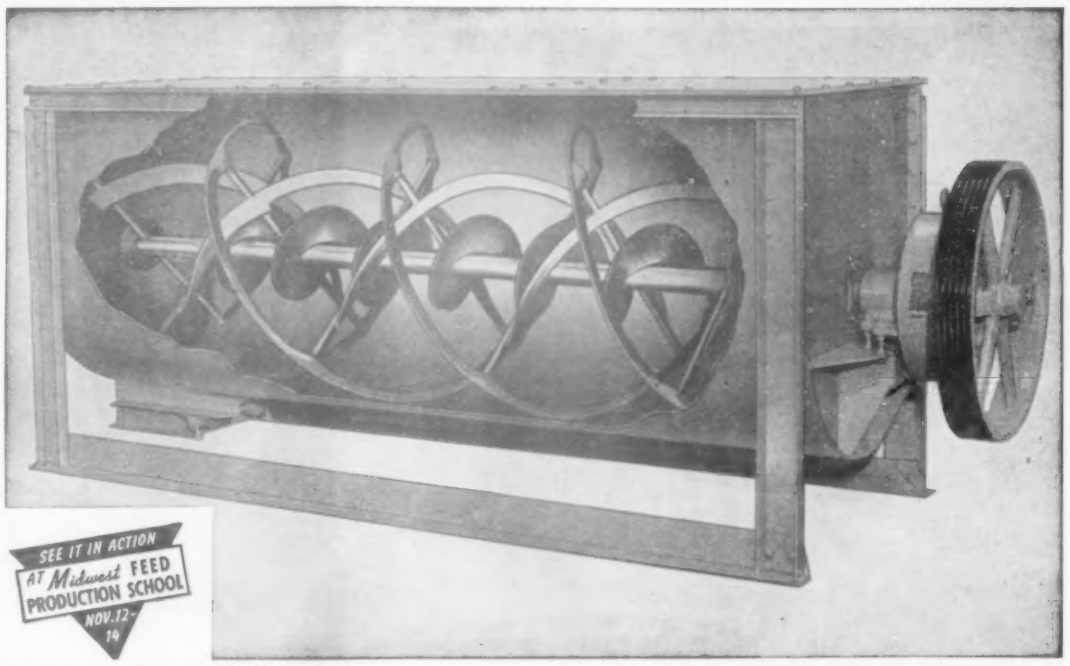

SEE IT IN ACTION AT Midwest FEED PRODUCTION SCHOOL NOV. 12-14

UNIFORM BLENDING AT HIGH CAPACITY IN 2 TO 7 MINUTES

Strong-Scott Triple Action Mixers Solve Mixing And Blending Problems

Now you can get a horizontal batch type mixer, with exclusive "Triple Action" mixing, created by the unique Strong-Scott triple ribbon and spiral assembly. This blending, folding and mixing action exposes each particle to thousands of separate mixing actions per minute, producing a well balanced, uniformly mixed product of the highest efficiency known.

THOROUGH MIXING — Complete mixing and blending in 2 to 7 minutes. Smooth interiors, without ridges or vanes, eliminate any gathering of materials and assure a thorough, sanitary, clean operation. Available in sizes of ½ to 6 ton capacities.

PRECISION ENGINEERING—The Strong-Scott Triple Action Mixer offers the ideal combination of modern engineering design, simplicity and overall ruggedness. The end bearings supporting the agitator assembly adjust vertically assuring an exact tolerance between the ribbons and the tub surface at all times. Built of heavy gauge steel, stainless steel or commercial alloys.

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The Strong-Scott Pre-Mixers are also of the Triple Action agitator design. Normally supplied with a high leg mounting, they are engineered for initial preparation of feed supplements containing chemical ingredients, where a large mixer is not required. Available in 12, 15 and 18 cubic foot sizes.

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Prognosticators Look at '59 Beef

EAST LANSING, MICH.—Expectations for the next beef feeding session were listed by the department of agricultural economics at Michigan State University recently. Included in the forecasts were:

● Stockers and feeders will cost more this fall. As much more as $6 to $8 for calves and $3 to $5 for yearlings.

● Cattle will be carrying more weight and finish than normal, making selection of desired feeders more difficult.

● Slim chance for feeder prices to weaken late in the fall, so waiting until November will gain little.

● Selling prices will hold nearly as high in 1959 as in 1958. This is assuming that no drouth will occur in the West and that the economy moves out of the current recession.

● Selling prices will follow a more seasonal course in 1959, than this year.

● Corn should be about as cheap as last year at $1.10 to $1.20 bu.

● Margins will be smaller than last year, but there will still be profits under good management.

It will be several years before the heifer calves being raised now will add much to the beef supply, the MSU economists said, so the cattle market should be basically strong from the supply side for the next two years.

Cyanamid Names Feed Product Distributor

NEW YORK—The Miller Chemical Co., Omaha, Neb., has been appointed as distributor of animal feed products manufactured by American Cyanamid Co., New York. Miller will handle the company's complete line in Iowa, South Dakota, Nebraska and Kansas.

The Miller company, which also formulates insecticides and weed killers under its own name, has been distributing Cyanamid's animal health products for almost five years. Addition of the animal feed line will enable it to serve better both the crop and livestock industries, according to a company spokesman.

In addition to its Omaha headquarters, Miller maintains branches in Sioux Falls, S.D., and Des Moines. The company will have technical service personnel available for consultation on feed and other chemical problems.

ADDS TO ELEVATOR

BODE, IOWA—An elevator addition providing storage for 80,000 bu. of beans and 160,000 bu. of corn was completed recently at the elevator here.

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Unistat also stimulates growth . . . improves feed conversion . . . gives birds better pigmentation.

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WHAT'S NEW IN FEEDING?

Putting Research to Work

By Spencer H. Morrison, Ph.D., D.V.M.

Utilization of Poultry By-Products in Poultry Rations

● E. L. Wisman, C. E. Holmes and R. W. Engel, Virginia Agricultural Experiment Station; Poultry Science, Vol. 37, No. 4, July, 1958, pp. 834-838.

ABSTRACT

Three experiments were conducted during 1956 and 1957 to further evaluate the use of hydrolyzed feather meal, poultry by-products meal and poultry blood meal in chick starter, broiler and layer rations.

In the first experiment the three products were evaluated as additions to both 20% protein (optimal) diets, and sub-optimal 17% protein diets for starting chicks. The basal rations contained either 14 or 17% crude vegetable protein and were considered to be adequate in all other nutrient essentials except protein. The various poultry products were added to these basal rations so that they supplied an additional 3% of crude protein. Adjustments were made when necessary in calcium and phosphorus between diets. The poultry by-products were evaluated against additions of menhaden fish meal and meat scrap at the same level.

The results showed that all poultry products increased the rate of gain and improved the feed efficiency, except in the case of poultry by-product meal, when added to the basal 17% protein diet. None of the poultry products were better than fish meal or a combination of poultry products in producing the gain response. Only fish meal was capable of producing the gain response on the sub-optimal 14% basal ration. This work indicates that although the poultry products were satisfactory when incorporated in 20% protein chick starters either singly or in combination to provide 3% of the crude protein, they were not as good as menhaden fish meal with suboptimal diets.

The second experiment evaluated the various poultry packing house by-products as sources of protein in 22% crude protein broiler rations compared with ones containing merely vegetable protein (with whey) or with ones containing 4% fish meal and 4% meat scrap or various combinations of fish meal or meat scrap with poultry by-products.

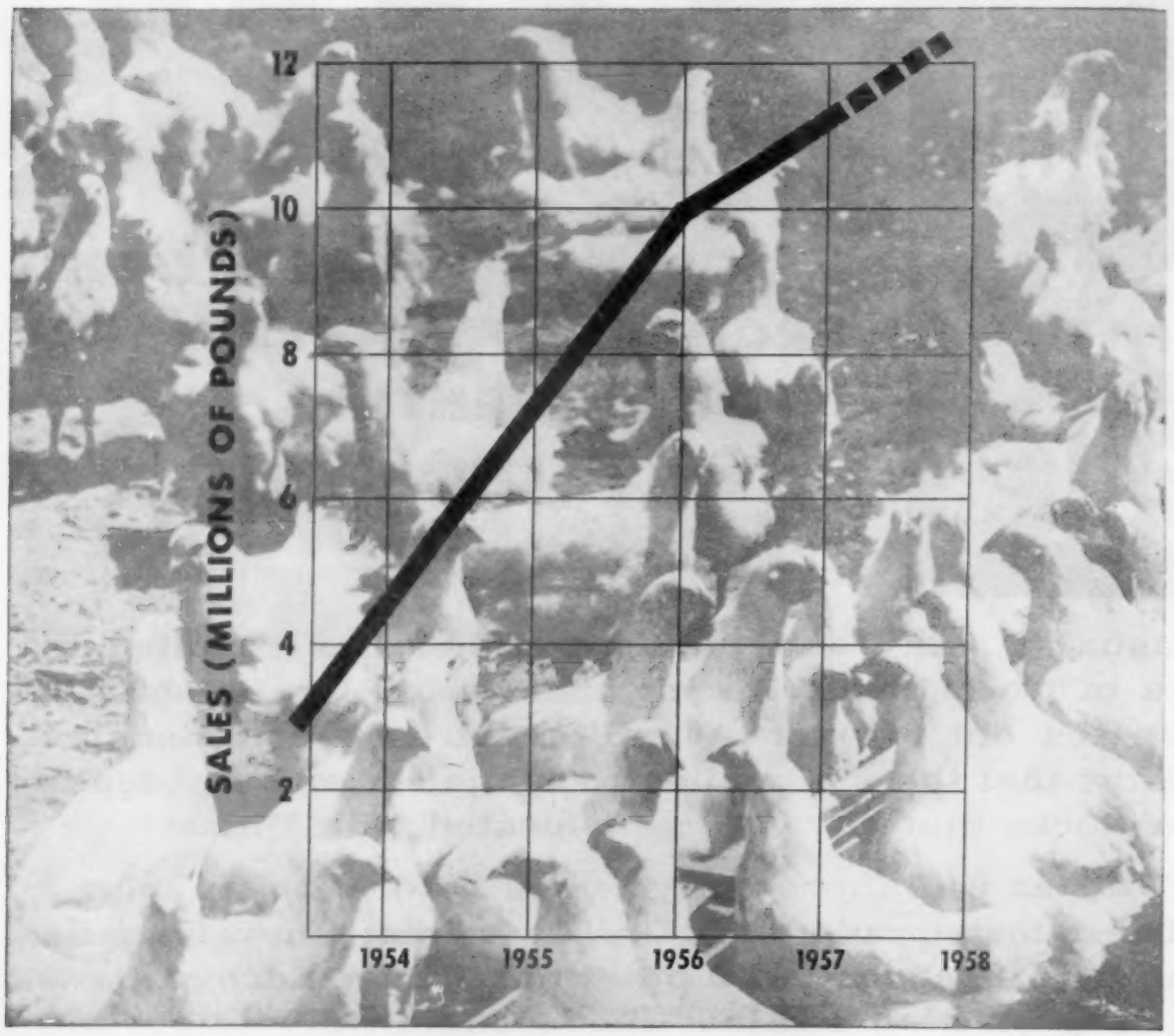
The results indicated that either hydrolyzed feather meal and fish meal, and poultry by-product meal and meat scrap could be used interchangeably at 4% levels in broiler rations. If both the fish meal and meat scrap components of the ration were replaced by poultry products, better results were secured with the inclusion of a mixture of 2.56% feather meal, 5.04% poultry by-products meal, and 0.40% poultry blood meal than with a combination of 4% poultry by-product meal and 4% feather meal, in terms of weight and feed conversion.

The last experiment evaluated the use of feather meal and poultry by-product meal in laying rations using New Hampshire or Single Comb White Leghorn pullets. The New Hampshires were used to evaluate the substitution of 6% of feather meal to replace 3.75% meat scrap and part of the soybean oil meal in a 20% mash fed in equal parts with a grain scratch mixture (60 lb. coarse cracked corn, 25 lb. whole wheat, and 15 lb. whole oats). The Leghorns were used to evaluate the addition of 6% of poultry by-product meal to replace meat scraps and soybean meal in a similar manner as described above. Duplicate pens of 35 seven-month-old pullets were used in the 10-month laying trial (280 birds total).

There was no effect on rate of lay when the poultry products were included in the diet at the expense of all the meat scrap and part of the soybean meal. Improved feed efficiency was observed with the New Hampshires on the feather meal diets (6.59 vs. 7.13 lb. of feed per dozen eggs at approximately 57% production).

COMMENT

There has been a great deal of work reported on the use of feather meal in broiler diets during the past few years. Recent tests such as those by Harms (1957), McKerns and Rittersporn (1958), and Fuller (1956) all have demonstrated that feather meal can be used in low amounts to furnish part of the protein in chick or broiler diets. Certain work (Harms, 1957; Romoser, 1957; Runnels, 1957, Sullivan and Stephenson, 1957) seems to indicate that feather meal cannot be used at much over a level of 3.5 to 4% in broiler diets. Supplementation of feather meal with methionine in certain experiments has been bene-



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SEEK METHODS TO "HAM-CURE" TURKEYS

CLEMSON, S.C.—Experiments are under way in the food technology department at Clemson College to develop methods to cure smoked turkey, in much the same manner as hams and other meats. Since cured smoked turkey is available only in limited quantities, J. H. Mitchell, Jr., head of the department, said numerous variables are being studied so the turkey can be economically cured. "Success in this direction should widen the market for turkeys," Marie S. Hindman, home economist, who is working with Mr. Mitchell, pointed out.

ficial while in others it has not. (Combs, 1957; Gordon and Maddy, 1957). The Virginia workers did not supplement their diets with amino acids.

There is not much work with laying hens using feather meal or other poultry by-products. The most recent report is by Harms and Goff (1957) in which addition of either 2½ or 5% of feather meal or poultry by-products meal supported normal egg production and hatchability for Single Comb White Leghorns fed a corn-soybean oil meal-alfalfa meal type of diet.

The Virginia work is additional support for the opinion that feather meal and poultry by-product meal can be used successfully in laying hen rations as well as in chick and broiler diets. In using these materials in chick and broiler diets, it is certainly necessary to pay attention to the balance of the various essential amino acids furnished by the ration and, if necessary, correct the deficiencies possibly accentuated by inclusion of feather meal in the diet.

●

Timely and Worth Noting

SIMPLE METHODS FOR THE DETECTION OF UNFAVORABLE CHANGES IN RUMINAL INGESTA —R. E. Nichols and K. E. Penn, University of Wisconsin, Journal of the American Veterinary Medical Assn., Vol. 133, No. 5, Sept. 1, 1958, pp. 275-277.

It is somteimes desirable to ascertain whether or not the microbial activity of ruminant animals is "healthy." Two simple tests are described in this article which enable one to appraise the activity of the microorganism population quickly and easily under field conditions.

The first test is the sediment activity test in which a sample of rumen fluid is strained through cheese cloth to remove coarse particles thoroughly mixed, the time recorded and then placed at body temperature without agitation. In normal animals the particles of material tend to clump together (agglutinate), start to settle and then float to the surface. The time in minutes that intervenes between the filling of the cylinder or container and the completion of the agglutinated floating mass is recorded as the sediment activity time, and can serve as a guide to normal rumen activity.

The second test places 10 millimeters of strained ruminal fluid in an ordinary 15 ml. test tube (screw cap type). A single strand of unmercerized cotton thread, weighted at one end is suspended in the liquid. The sample is then maintained at body temperature, without agitation. The tube is examined in 24 hours and at six hour intervals afterwards. If the thread is not broken within 30 hours, the cellulose digestion time is interpreted as being delayed.

Cooperative Launches Pig "Arena" Program

RICHMOND, VA. — Southern States Cooperative, Richmond, announced in a recent issue of its publication, Service Guide, that the cooperative has plans available for the construction of pig "arenas" for finishing hogs on concrete.

The publication said several cooperative service agencies in Virginia began working with their patrons in building some confinement hog finishing units with concrete floors several months ago.

Plans available from Southern States call for an arena or pig parlor with a concrete floor with a slope of ½ in. per foot and at least 50% of the area covered by a roof of aluminum or other reflective material. Fifteen square feet of floor space are allowed per hog exclusive of the amount of space taken up by feeders and waterers. The cooperative recommends self feeders allowing one feeder hole for each three hogs. The cooperative has a hog feeder designed for use with interior bulk feed bins that fulfills this requirement.

One waterer is recommended for each 20 pigs, and the cooperative also recommends fogging nozzles and location of the arena in a shaded area.

Reporting results of feeding 51 pigs Southern States feeds in the pig arena program, the publication said the 51 pigs averaged 43 lb. at the start of the feeding period and gained 8,823 lb. on 28,234 lb. feed. They were marketed at 21 weeks with a feed conversion of 3.20 lb. and a total cost of 13.2¢ lb.

DIES AS BIN COLLAPSES

SIKESTON, MO. — Henry Brashears, Jr., Sikeston, one of four men working under a grain storage bin at the Bertrand Cotton Co., here was trapped under the bin when it suddenly collapsed. The three others escaped. but Mr. Brashears died before rescuers could get to him.

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CORN DISTILLERS SOLUBLES WITH GRAINS

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Milk Dried for Feed Increases in Output

WASHINGTON — Production of dry skim milk for animal feed during the month of August was 1.45 million pounds, an increase of 21% over August, 1957, the U.S. Department of Agriculture reports.

The production for the month was 3% below the 1952-56 average. Output for the first eight months of 1958 was 11.3 million pounds, about unchanged from the same period in 1957.

Stocks of dry skim milk held by manufacturers Aug. 31 totaled 1,114,000 lb., a drop of 34% from Aug. 31, 1957, and down 45% from the 1952-56 average for the date.

Dry buttermilk for both human and animal consumption had total production of 5,150,000 lb. for August, an increase of 23% over the average, but down 3% from a year ago. Stocks of dry buttermilk held by manufacturers Aug. 31 were 6,686,000 lb., down 25% from the average and off 10% from last year.

Manufacturers' reported shipments of skim milk for animal feed during the month of August were 862,000 lb., an increase of 18% over August a year ago. Shipments of buttermilk for animal feed were 738,000 lb., a drop of 19% from August a year ago, but slightly better than the month of July, 1958.

The report said the manufacturers' average selling price per pound, f.o.b. plant, during August was 9.39¢ lb. for dry skim milk for animal feed, compared with 10¢ a year earlier and 9.44¢ a month earlier. Dry buttermilk for animal feed had an average price during August of 9.03¢ lb. f.o.b. plant, compared with 7.83¢ a year earlier and 9.18¢ a month earlier.

Cecil H. Dodd

HEADS DIVISION — The appointment of Cecil H. (Bob) Dodd to head up the new Anglo American Mill Division of Daffin Manufacturing Co., Lancaster, Pa., has been announced by Irl A. Daffin, president. Mr. Dodd, a native of England, has been associated with the Owensboro, Ky., manufacturing firm for 26 years, assuming the presidency on the death of his father in 1955. The new Daffin division will continue production of the Anglo American line of pelleting mills, batch mixers and other equipment for the feed processing, flour and chemical industries.

COMPLETES STORAGE BIN

MARSHALLTOWN, IOWA—Marshall Elevator Co. has recently completed construction of a 100,000-bu. storage and grain bin, according to Wendell Robertson, general sales manager. A new electronic moisture tester was also installed. The company operates elevators at Marshalltown, Legrand and Dillon. Feeds, feeders and waterers are handled.

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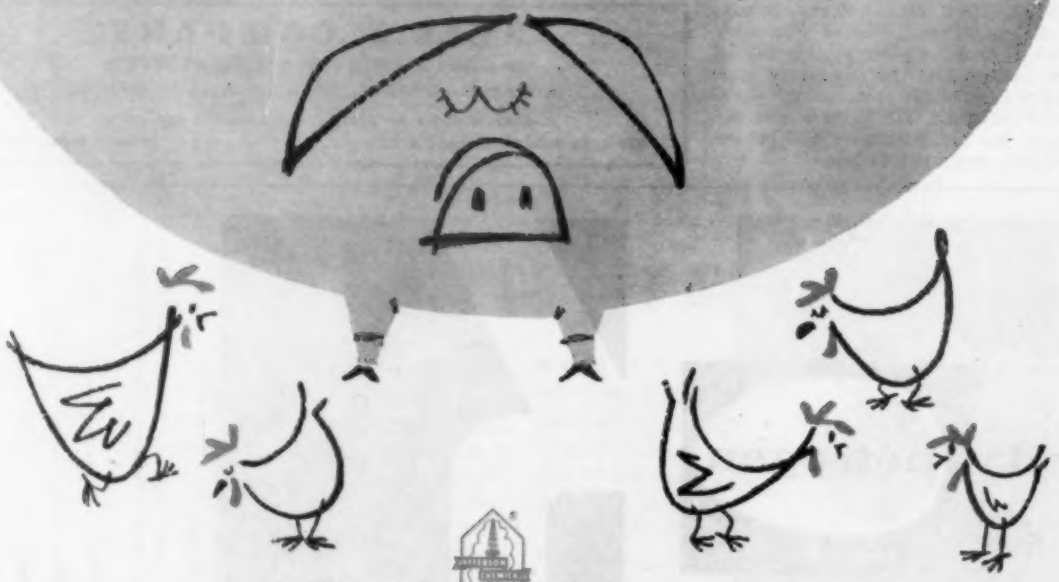

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Midwest Integration—Part 2

WHERE TO - - - INTEGRATION?

It looks as though at least partial integration will continue to spread to more areas

By Al P. Nelson
Feedstuffs Special Writer

EDITOR'S NOTE: This is the second of two articles on integration and contract farming in the midwest. Al Nelson, Feedstuffs special writer, made an extensive trip this past summer through several midwestern states, visiting feed dealers, mill operators and others and asking their views on the development of integration. In the accompanying article, he gives particular attention to a feed firm's swine program, and he also reports general views on the outlook for integration. Mr. Nelson concludes that at least partial integration will continue to spread to more parts of the Midwest.

When I called on genial, hard working Bob Skinner, secretary of the Western Grain & Feed Assn., Des Moines, I asked some questions about integration in Iowa. I said I had read his Iowa integration report of a month or so earlier, in which he stated that a survey of the producer-to-market integration situation had revealed a normal amount of contract feeding, but not very much integration in the true sense of the word.

"That's right," Bob said. "There's a great deal of talk about integration and its possibilities, but so far not much actual evidence of it in Iowa."

I named the sections of Iowa I had covered and mentioned names of Western directors I had called on, among others, all of whom concurred with his report and my own findings.

"But the situation could change," Bob pointed out. "Agriculture is a field which is always improving, sometimes rapidly. However, I feel many of our large Iowa farms are going to continue to operate independent of integration. At the same time a sizable number of farmers may find it profitable to come into the fold. Who knows?"

Feed Company's Program

It was suggested that I contact Foxbilt Feeds in Des Moines, which has been operating a quality hog program for some time. Wayne Fox, vice president of the company, explained the program. He pointed out that Foxbilt has been interested in developing a leaner type of hog since 1946. It chose a Minnesota type hog to propagate in Iowa and other midwestern states because officials felt it to be a hog best suited for that region.

For four years now, Foxbilt has offered two hog stock improvement plans to farmers in several states and, it was indicated, many farmers have taken advantage of the offers. Foxbilt, according to Mr. Fox, will lease a boar to a hog producer on a plan designed to improve that farmer's herd. The farmer is leased an inbred Minnesota boar and pays a $3.75 service charge. Then when the boar is marketed, usually after the sows are bred for the second litters, Foxbilt gets the market price of the boar. Foxbilt also gets the market price of three, 200-lb. hogs or 600 lb. of pork when the farmer markets the first litter. The company receives nothing on other litters.

In this program, Mr. Fox points out, the company and the farmer are partners in producing quality hogs. The Minnesota lines (Minnesota 1's, 2's and 3's) were chosen by Foxbilt because they produce good litters, have a good feed conversion and a good carcass. It was noted that all the stock is bloodtested for Bang's and leptospirosis and vaccinated for cholera, lepto and erysipelas. It is felt that this is as complete a health program as is available where livestock is to be transferred from one farm to another.

The boar which the farmer leases from Foxbilt remains on the farm,

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but the farmer cannot lend him to neighbors, etc. Likewise, the farmer markets his hogs where he wishes and he can terminate his contract with Foxbilt if he wishes upon proper notice.

As of mid-July Foxbilt had some 800 boars out on lease in 10 states, said Mr. Fox. Some farmers, he noted, have been getting $1.75 premium at the St. Joseph, Mo., market with this type of hog.

Foxbilt is not aiming at complete integration, states Mr. Fox, but the firm gets many inquiries from packers in various states about the quality hog plan. The demand for boars for lease, he said, is greater than Foxbilt can supply at the present time from its several farms.

Foxbilt's second hog lease plan is a gilt and boar lease. Under this program the hog producer is supplied with breeder gilts at 220 lb. weight plus boars to serve. Foxbilt finances the feed supplements at no charge. In return, the farmer provides Foxbilt with one gilt from each litter. Thus, if the farmer got 10 sows and one boar from Foxbilt, he would return 10 gilts at market weight. Foxbilt would also get the boar and sows back at a specified time. "The object of this type of lease," states Mr. Fox, "is to propagate meat-type hogs."

Chicken Lease

Foxbilt, which is also associated with Ames In-Cross Co., operates a chicken lease program. Farmers on the program pay a service charge which amounts to the hatching cost of the chicks. The pullets lay for one full year and are then sent to market. The raiser remits to Foxbilt the receipts for 3 lb. of fowl for each pullet leased. If this pays for the price of the chicks, the account is settled. If 3 lb. does not pay for the cost of the chicks, Foxbilt is the loser. If the sale of hens yields more than 3 lb. per pullet leased, Foxbilt remits to the grower on the overage.

In both hog and chicken contracts the grower does his own marketing. Foxbilt furnishes the feed and offers supervision on the gilt lease and chicken lease plans. Mr. Fox said that all three lease plans are doing very well. In fact, he said, the swine lease plans are committed far in advance. The problem now is to provide enough gilts and boars to expand.

Concurrent with the expansion of its lease plans, the Foxbilt firm is conducting a hog carcass study which may help in giving additional information for farmer feeders on producing profitable pork.

Approximately 15% of Foxbilt feed production is sold to hog and chicken producers under contract or lease.

The Foxbilt plan, just as the Quaker Oats Co. program through the St. Joseph, Mo., market and at several other points, does give the hog producer a great deal of freedom. He is not subsidized, but held, of course, to producing according to a management plan if he hopes to qualify for premium prices. Quaker Oats Co. in its program provides for a specific market. Foxbilt producers can select their own markets where they often obtain premium prices. In the Quaker Oats Co. plan the hog producer, however, can also choose other markets if he wishes.

Midwest hog producers, too, are vitally interested in cooperative and other hog buying programs said to be getting into operation. These are programs, it is said, whereby hog producers who sell to these buyer cooperatives need not buy cooperative brand feeds necessarily.

Quality Product

But all these integration movements — whether cooperative, feed manufacturer or packer sponsored—aim at the same thing, a more acceptable product to the consumer, one which will get more sales, and most certainly, so far as the Midwest is concerned, there would seem to be many opportunities forthcoming for the independent farmer to get his feet wet in the integration movement, while others will want to go in knee deep and some will want to dive deep in. How far an independent

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DOG CENTER OPENED—Waiting to tour the facilities of Ralston Purina's new Dog Center at the company's research farm at Gray Summit, Mo., is part of the crowd that was on hand for the recent opening ceremonies. In the second picture Raymond E. Rowland, president of the company, cuts the ribbon, formally opening the new center. Behind Mr. Rowland is Dr. R. M. Bethke, Purina research vice president. On the right are J. D. Sykes, Purina vice president, and John M. Wear, manager of the Purina Research Farm. Facilities at the center include a metabolism division for measuring dogs' energy requirements, maternity pens where nutritional requirements of gestation, reproduction and lactation will be studied, clinic facilities, a diet kitchen and 104 outdoor runs, each with an indoor pen. The new center will carry forward and enlarge upon work that has been in continuous progress in the research kennels at the farm since 1927.

farmer can go into integration and still retain the measure of independent action he wants is going to be up to him to decide. He undoubtedly can stay out and possibly find satisfactory markets. Much will depend upon his management skill and initiative.

In a Wisconsin feed store I heard two farmers discussing integration. One was for it, the other against. "Why are you so set against this integration?" one asked the other. "You've been contracting peas and cucumbers for years, toeing the line on regulations, and I never heard you kick. Then when the state milk order went to bulk regulations, you let the dairy plant finance the deal and pay for it out of your milk checks. You have to deal with them till you get paid up, don't you? So why not integrate on hogs and chickens?"

"I know I gave up a lot of freedom on those peas and cucumber contracts," said the other. "And I didn't like that bulk deal, but I had to take it to sell my milk to that dairy. But I don't want to be strapped down in all my operations. That's why I'm against any more of this stuff."

Partial integration will spread to more parts of the Midwest, I am sure. It will be an economic necessity in many areas. Controlled integration perhaps will be vested in various hands—farm cooperative groups, feed manufacturers, packers—all competitive with one another for top farm producers, and perhaps that will be the strength of the integration movement, wherever it may spread.

Separate Rearing, Different Feeds For Male, Female Broilers Seen

COLLEGE PARK, MD.—Research work has begun at the University of Maryland to study broiler feed formulas for each of the sexes in view of the possibility of separate rearing of the sexes in the future.

Dr. G. F. Combs, Maryland poultry nutritionist, told of possible developments in rearing by sexes in a talk on feeding practices at the recent Maryland Conference for Poultry Industry Service Men. (His talk and others at the conference were reviewed in the Sept. 20 issue of Feedstuffs.)

On the subject of rearing by sexes, Dr. Combs said:

"Although little difference by growth rate is normally encountered in broiler production to four weeks of age, males grow approximately 30% faster during the period from four to eight weeks than do female broilers. This marked difference in growth rate during the latter stages of broiler production strongly suggests the need for nutritional studies to determine whether or not savings in feed cost could be obtained by separate rearing of the sexes.

"Work has begun at the University of Maryland to study formulas for each of the sexes from this standpoint. One would expect that most of our broiler feeds have been geared to meet the requirements of the faster growing males. The main difference in the feeds for males and females during this latter period of growth would be level of protein in relation to energy content of the feeds. It would be expected that relatively lower protein levels could be used for females than for males without adversely affecting their rate of growth. Thus, feeds would not only cost less but should go farther since they would be more potent in energy content.

"Ultimately, we might expect to have autosexed crossbred broiler chicks available which could be separated at hatching without an additional cost of sexing. Such a practice might logically be expected to reduce slightly the cost of production and at the same time allow for much more flexibility in time of marketing in order to realize the greatest return. Males might be carried to heavier weights with much better feed conversion than for females.

"This can be expected to result eventually in one additional step towards more efficient meat production of broilers. At the present time, research is needed to appraise more fully the economic aspects of this proposal."

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IOWA CONFERENCE SCENES—Sponsors of the Iowa College-Feed Industry Conference held recently at Iowa State College were the Western Grain & Feed Assn., the Feed Institute, Inc., Midwest Feed Manufacturers Assn. and Iowa State College. In the picture at left are members of the convention committee. Left to right, standing, are: Lloyd S. Larson, Midwest Feed Manufacturers Assn., Kansas City; Bob Skinner, Western Grain & Feed Assn., Des Moines, and Albert Guggedahl, Feed Institute, Inc., Des Moines. Seated, left to right, are: Ray Van Poucke, Ames (Iowa) Reliable Products Co.; Charles J. Lewis, Kent Feeds, Inc., Muscatine, and Robert L. Vohs, Ames Reliable Products Co. In the second picture is Dr. Wise Burroughs, Iowa State College, who spoke with other educators on how industry-college teamwork can benefit the American farmer.

Tests Indicate Cattle Need More Vitamin A In Hot Climates

TUCSON, ARIZ.—More vitamin A apparently is required by Arizona cattle than cattle in colder climates, A. L. Lane, livestock specialist for the University of Arizona Agricultural Extension Service, has reported.

Research at the Arizona station on vitamin A points out some important relationships between heat and vitamin A.

"In extremely hot weather, such as occurs in summertime in the feeding areas of Arizona, any deficiency in vitamin A apparently causes more stress to cattle than in colder areas," Mr. Lane said.

"Since stress is greater when the temperature is highest, cattle fed in these warm areas should be adequately fortified with either carotene or preformed vitamin A.

"Even though physical symptoms of vitamin A deficiency in cattle do not appear, the most rapid and efficient gains may not be obtained because of the shortage of vitamin A.

"The university studies also show that if vitamin A levels are low, the animal fights to keep from using every last bit of stored vitamin A. If the vitamin A storage is very high in the animals, they use it more rapidly than when storage is low."

Mr. Lane said that when vitamin A reserves are very low, cattle cannot as effectively change carotene to vitamin A. When this condition exists, the use of preformed vitamin A builds up vitamin A reserves much faster than carotene.

"Cattle are not the most efficient converters of carotene to vitamin A, but if they have had adequate sources of carotene in green feeds, there should be no problem in maintaining their vitamin A demands," Mr. Lane added.

"Vitamin A levels might be deficient in cattle where there has been frequent drouth, unknown origin of the cattle, and young, light calves that are not as efficient converters of carotene as older cattle."

Feed Man Forms Club For Traveling Salesmen

OMAHA, NEB. — A "Traveling Salesman Club" organized by a feed salesman at Blair, Neb., attracted statewide interest recently in a news story about the club in an Omaha newspaper.

The club was formed at Blair by Dewey Nemetz, a sales executive for the O. A. Cooper Co., Humboldt, Neb. It was organized to help fit traveling men into community life, to promote the interchange of selling ideas and techniques and to lend the ideas and help of traveling men to various local civic and charitable undertakings, according to Mr. Nemetz.

Competitive feed salesmen are members of the Blair organization, he said, along with men who sell a variety of other products. The group has several civic projects under planning.

Mr. Nemetz said similar traveling salesmen clubs have been formed in Minnesota, Iowa and North and South Dakota.

New Extract Found to Color Poultry Products

NEW BRUNSWICK, N.J.—The extracts of annatto seeds (Bixia Orellana) and seed residues are useful for coloring egg yolks and the shanks and skins of broilers, it has been reported by Dr. R. L. Squibb, head of the poultry department at Rutgers University.

The Agricultural Experiment Station at Rutgers is therefore conducting an experimental project on this subject. The study will be concerned with the preparation and evaluation of whole annatto seeds and identifiable fractions of annatto seed pigments.

"Based on metabolism studies it may be possible to propose procedures for the preparation and use of annatto seed pigments for coloring poultry products," it was stated in a Rutgers experiment station publication.

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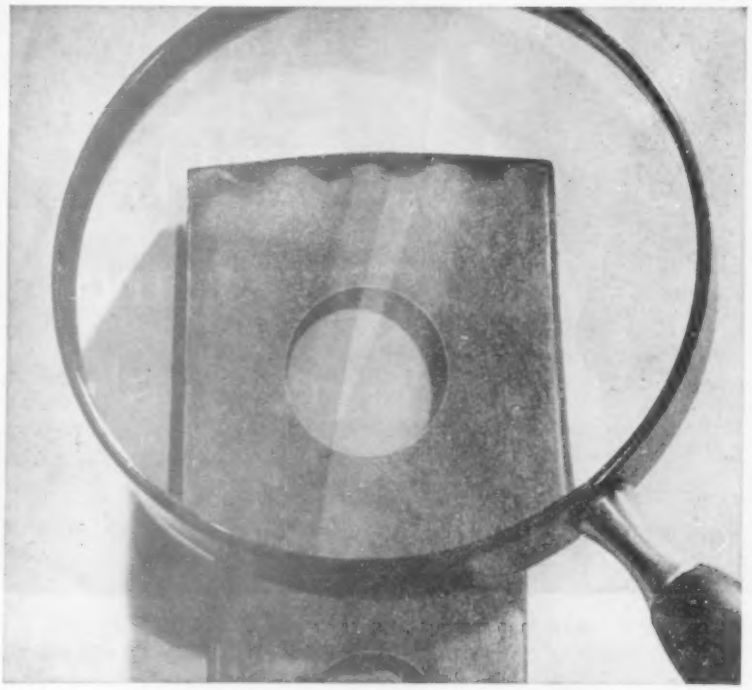

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USDA Reports On Selective Hog Breeding Studies

BELTSVILLE, MD.—How fast and how much can the lean-to-fat ratio in hog carcasses be changed through selective breeding? This is a question being answered through basic studies at the U.S. Department of Agriculture agricultural research center in Beltsville.

A report on progress in the studies was made in a recent issue of Agricultural Research, publication of the USDA. Work so far indicates that individual animals selected for their greater-than-average leanness or fatness will transmit part of that advantage or disadvantage to their offspring.

In three generations of selection in Duroc hogs, choice for low fat decreased backfat thickness by 11%, while selection for high fat increased backfat thickness by 14%. Animals chosen with significantly less backfat than herd average transmitted about 41% of that advantage to their offspring. On the other hand, animals chosen with more backfat than herd average transmitted about 57% of that disadvantage. Thus, selection was somewhat more effective in increasing backfat than in decreasing it.

Carcass samples of third-generation Duroc hogs bred for leanness gave 3% more in yields of trimmed hams, loins and shoulder butts than the hogs bred for fatness. At the same time, the specially bred fat-line Durocs averaged 0.6% higher in bacon yields and 5% higher in percentage of other fat cuts.

This means that for every 200-lb. Duroc marketed, third-generation lean-line pigs averaged 6.2 lb. more lean cuts and 10 lb. less fat cuts than fat-line animals. The latter yielded 1.2 lb. more bacon.

These differences are large, of course. But progress in separating the lean-to-fat ratio in succeeding generations of the two lines may not be as rapid.

Selection in the Yorkshire breed is giving similar results. But more data are needed on the Yorkshires to tell just how effective selection will be in this breed, the report said.

Table Quality

Tests of lean tissue for fat distribution and flavor showed that fat Durocs—with 15% more intramuscular fat—produced roast pork with more tenderness, flavor, and juiciness than did lean Durocs. Carcass and flavor data for these tests are being provided by R. L. Hiner, ARS food technologist, and his associates.

H. O. Hetzer, ARS geneticist, is developing by selection a line high in fatness and one low in fatness in each of the two breeds. Primary criterion of selection is backfat thickness at a live weight of 175 lb. Only secondary consideration is being given to such traits as litter size, growth rate, and conformation.

The average difference in backfat thickness between the lean-line and fat-line Durocs was 0.4 in. in the first generation, 0.19 in the second, and 0.37 in the third. Average backfat thickness in the foundation stock was 1.49 in. This increased to 1.70 in. in third generation fat-line Durocs, and decreased to about 1.33 in. in third-generation lean-line Durocs.

Researchers believe the difference in lean-to-fat ratio will become more pronounced as selection continues.

Selection Gives Length

Results also showed that selection for low backfat has tended to increase length and height and decrease body width, while selection for high backfat has generally resulted in shorter, lower and wider bodied hogs.

State agricultural experiment stations and private breeders, as well as USDA, have been working for years to improve purebred hogs and develop superior crossbreds for efficient pork production. Selection for carcass quality in swine based on backfat thickness was started at Beltsville in 1954, an outgrowth of increasing interest in the meat-type hog. The Beltsville studies, part of this over-all plan, are providing useful data on the value of selective breeding in producing meat-type hogs.

These studies will be continued as long as selection is effective in changing the lean-to-fat ratio.

New Mill Completed At Nampa, Idaho

NAMPA, IDAHO—A new feed mill with a capacity of about 190 tons of poultry feed a day has been completed by the Albertson Feed & Milling Co. at Nampa.

The mill features a vacuum unloading system with a capacity of 15 tons an hour.

Most of the feed produced at the mill will go to the Albertson farm near Nampa. The grain will come from farms in the area, and will be purchased on the open market, according to Lyle Chase, mill superintendent.

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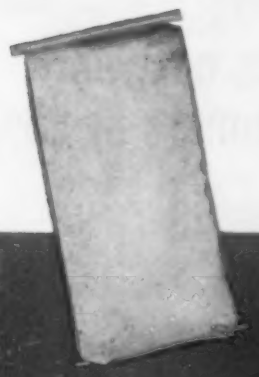

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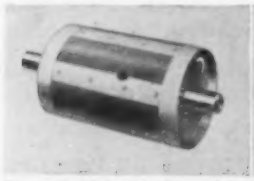
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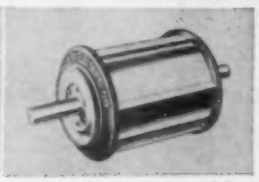
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Grazing Value Shown In New Mexico Trial

STATE COLLEGE, N.M. — It is more economical to produce milk by strip-rotation grazing cows on alfalfa pasture than by machine-harvesting the crop for green chop or silage, according to research by the dairy department of the New Mexico A&M College Agricultural Experiment Station.

Dr. S. R. Skaggs, dairy husbandman, and Dr. R. M. Porter, assistant dairy husbandman, were in charge of the three-year experiment. The results are presented in a recently-issued bulletin, "Forage and Milk Yields from Alfalfa Under Three Diffent Harvesting Systems."

The other two methods in the experiment were feeding of green-chopped fresh alfalfa and alfalfa silage. "Results of this experiment," according to the bulletin, "show that, that the standpoint of efficient use of forage eaten, the grazing cow appears to produce more milk for the amount of feed consumed than cows fed the whole, chopped alfalfa plant, either fresh or ensiled."

Electric fences were used to confine cows to about one sixth of an acre of fresh forage each day during the grazing phase of the experiment. This system reduced forage loss to a minimum. Dry roughage was fed to prevent bloat. Pastures were clipped after each grazing cycle to remove stemmy growth.

"Pasturing alfalfa with dairy cows saved more than half the labor involved in harvesting the crop with the most modern machinery available," according to the bulletin.

"Only where the dairy operation is on a large scale and pasturing cannot be practiced satisfactorily does it appear that machine-harvested forage crops might be economical," the researchers concluded.

Three herds of 10 cows each at the college dairy farm were rotated on the three methods of feeding to determine costs and milk production.

The bulletin, No. 421, may be obtained by writing to the Department of Information, Box 757, New Mexico A&M College, State College, N.M.

Bradley Skeels Moves To Washington, D.C.

MEMPHIS, TENN. — Bradley T. Skeels, chief supervisor of the U.S. Department of Agriculture's Agricultural Marketing Service, grain division, for the past seven years, has been transferred to Washington, D.C.

Mr. Skeels accepted a position in the inspection branch of the grain division, with officees in the Agriculture Building.

His successor in Memphis will be Lauren W. Clark, now in charge of the grain division's sub-district office at Houston, Texas. Mr. Clark is due in Memphis about Oct. 26 to take over his new duties.

One of Mr. Skeels' last actions in Memphis was to call a meeting, the purpose of which was to point out that soybeans and other grain sold in Memphis by truck in interstate shipment were in violation of the Grain Standard Act, unless official samples and inspection were acquired.

Jason E. Barr, chief inspector from Washington who attended the meeting, said that at this time it was not the purpose to enforce the law, but to see if the market could work out some system to comply with the law. Many problems are involved, he pointed out. However, the Memphis Board of Trade agreed to make an effort to work out a plan that would be feasible for sampling and inspecting all trucks coming into the Memphis market, and is working on the problem at the present.

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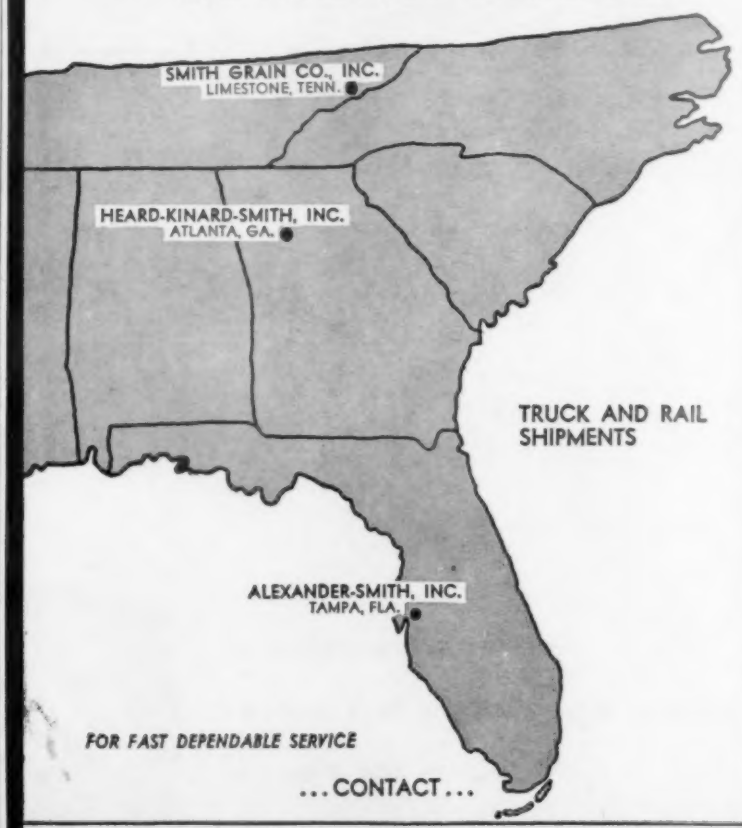

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USDA Reports Lower Alfalfa Seed Output

WASHINGTON—The 1958 alfalfa seed crop has been forecast at 146,871,000 lb. by the U.S. Department of Agriculture. The estimate is 9% less than the 160,815,000 lb. produced in 1957 but 8% above the 1947-56 average of 135,415,000 lb.

Larger crops than last year are in prospect in the Great Plains states from Nebraska southward and in Colorado and New Mexico, but the increases were more than offset, the report said, by sharp reductions in California, Washington and in several northern Great Plains states.

The bulk of the reduction is indicated this year in California where considerable field losses occurred in Fresno and Kern counties from heavy rains and winds. Production in California is estimated at 63,180,000 lb., compared with 84,600,000 lb. last year.

R. Tel King

M. A. Jurgens

Molasses Firm Names Official to New Post

DEKALB, ILL.—The DeKalb Molasses Feed Co. has announced the promotion of Tel King, sales manager of the firm for the past six years, to the post of assistant vice president and the appointment of M. A. Jurgens to succeed him as sales manager. The announcement was made by H. H. Cortelyou, president.

Mr. King has long been associated with the feed industry, first with Cargill, Inc., Minneapolis, and then with Doughboy Industries, Inc., New Richmond, Wis., before joining DeKalb Molasses Feed Co. in 1952.

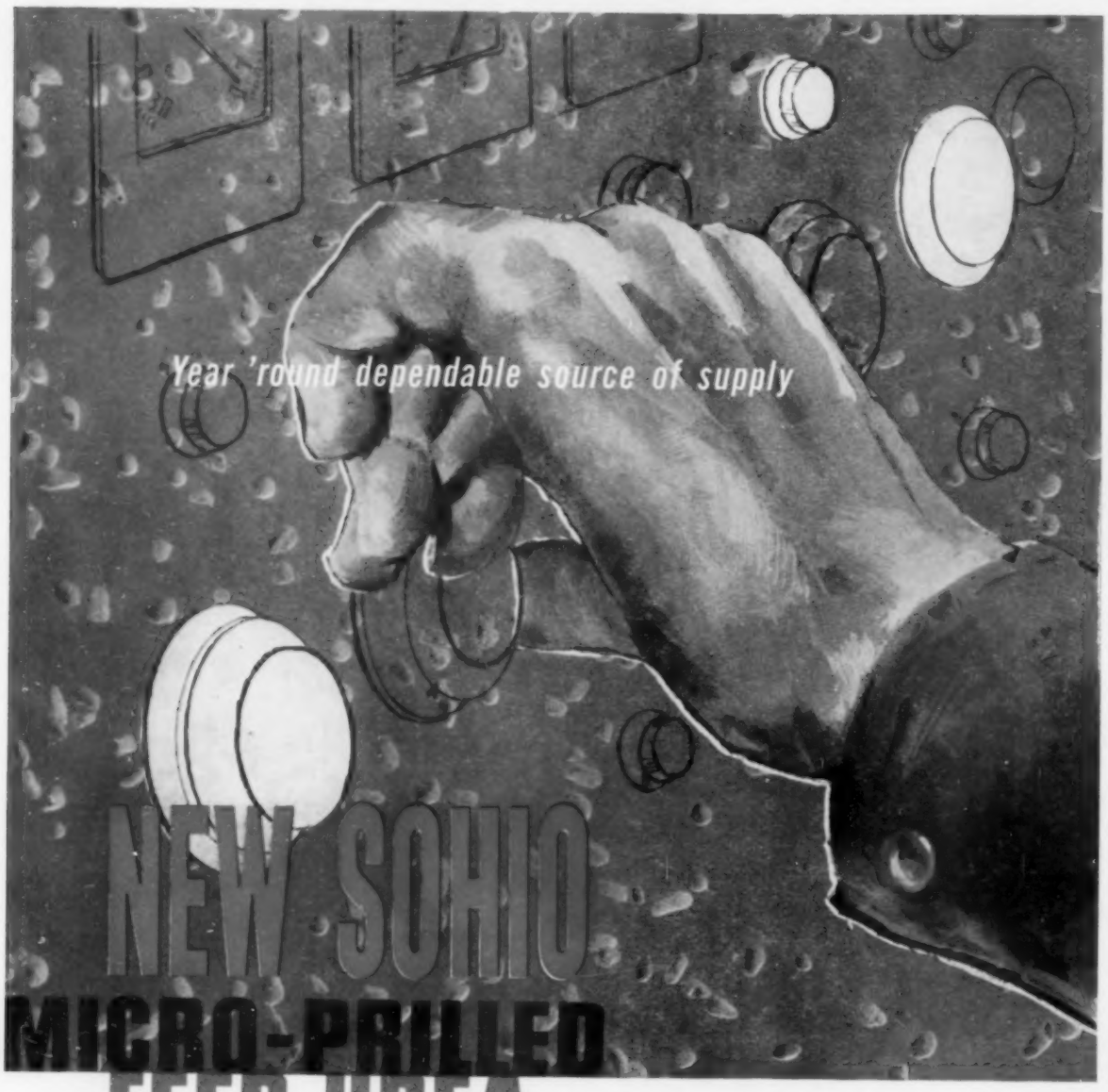
Mr. Jurgens has been connected with the Illinois Farm Supply Co., Chicago, for several years.

Missouri Firm to Open Hatchery in Georgia

PLEASANT HILL, MO.—Colonial Poultry Farms, Inc., with headquarters offices in Pleasant Hill, is opening a new hatchery in Lyons, Ga., it was announced by M. R. Irwin, president of the Colonial organization.

The new hatchery, with capacity of 156,000 eggs, will produce True-Line layers.

Manager of the new plant will be Marvin Speegal, who formerly worked for the Arkansas Farmers Assn. and Tyson's Hatchery of Springfield, Ark. It is planned to have the hatchery in operation starting Dec. 1.



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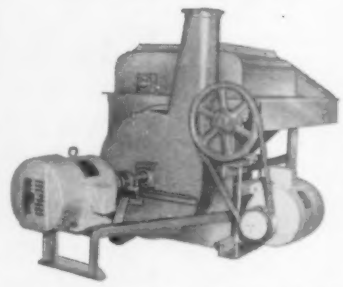

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SPROUT-WALDRON MOLASSES MIXER, complete with motor and piping, molasses pump and gauges. Like new $1,000. Napoleon Alfalfa Mills, Inc., Napoleon, Ohio.

WEBSTER POWER SHOVEL, COMPLETE with motor and starter, used very little, $300. Napoleon Alfalfa Mills, Inc., Napoleon, Ohio.

FOR SALE — PANTEX STEAM GENERator, 40 H.P., complete with water pump and totally enclosed motor. One year old. Wirthmore Mills, Hickory, N.C.

USED MOISTURE TESTERS BOUGHT AND SOLD

We buy and sell all makes used electric moisture testers. All used instruments carefully reconditioned by trained electronic engineers. Send for our FREE 200 page catalog on grain and feed testing and handling equipment.

BURROWS EQUIPMENT COMPANY
1316-C Sherman Avenue
Evanston, Illinois

NEW MOTORS AT BARGAIN PRICES

If you need motors of these sizes and styles—Here's your buy.

1 H.P., 1200 R.P.M., Tot. Enc.	$ 94.00
1 H.P., 900 R.P.M., Open, Dr. Pr., BB	93.00
1½ H.P., 1200 R.P.M., Open, Dr. Pr., BB	80.00
2 H.P., 1800 R.P.M., Tot. Enc.	106.00
2 H.P., 1200 R.P.M., Open, Dr. Pr., BB	107.00
3 H.P., 1800 R.P.M., Tot. Enc.	124.00
3 H.P., 1200 R.P.M., Tot. Enc.	141.00
3 H.P., 900 R.P.M., Tot. Enc.	156.00
5 H.P., 1800 R.P.M., Open, Dr. Pr., BB	106.00
10 H.P., 1200 R.P.M., Tot. Enc.	291.00
40 H.P., 3600 R.P.M., Dr. Pr., BB	585.00

Limited Number - First Come - First Served

Rebuilt Motors

500 H.P., 3600 R.P.M., Al-Ch., Dr. Pr.	$3,950.00
200 H.P., 3600 R.P.M., G.E., Dr. Pr.	1,800.00
100 H.P., 3600 R.P.M., West., Dr. Pr.	1,100.00
60 H.P., 1800 R.P.M., Lima, Dr. Pr.	650.00
50 H.P., 3600 R.P.M., G.E., Dr. Pr.	600.00
50 H.P., 1800 R.P.M., Lima, Dr. Pr.	600.00

All motor prices quoted f.o.b. destination. Many motors in smaller sizes than those listed at prices as low as 40% of new motors.

REDUCED VOLTAGE STARTERS

2—15 H.P., 220-V., West., ea.	$135.00
1—30 H.P., 220-V., C-H	200.00
1—50 H.P., 440-V., West.	214.00

Many new and used across the line motor starters all sizes—BIG SAVINGS

NEW AND USED V-PULLEYS
NEW V-BELTS
LET US QUOTE YOUR DRIVES—WE CAN SAVE YOU MONEY
All Prices Quoted, Subject to Change Without Notice

THE LIMA ARMATURE WORKS, INC.
130 E. Pearl Phone CA 2-4010 Lima, Ohio

MACHINERY FOR SALE

PELLET MILLS, 50 H.P. CALIFORNIA, with coolers and crumblizer; also Richardson Bagging Scales, animal fats tanks and molasses units. Ray Jones, Box 326, Benton, Ill.

LEASE EXPIRES, MUST SELL TWO-TON vertical feed mixer and Henke 27-inch roller mill. Both same as new, for details: Address Ad No. 4188, Feedstuffs, Minneapolis 40, Minn.

A-1 MELOS MOBILE MILL WITH MOlasses blender and mixer. 1957 outfit at ⅓ price of a new one. Excellent way to get into the modern way of milling with a small investment. Address Ad No. 4192, Feedstuffs, Minneapolis 40, Minn.

LATE MODEL CALIFORNIA PELLET mill, complete with two extra sets of dies, cooler, shaker, crumbler, boiler gas fired, elevator leg, 50 H.P. explosion proof motor and starter, $4,500. Napoleon Alfalfa Mills, Inc., Napoleon, Ohio.

THREE USED "JAY BEE" PORTABLE hammermills with molasses mixer units, drag feeders, collectors and sackers, powered by Waukesha engines, mounted on two-ton Ford and Chev. trucks, ready for operation. Excellent condition. Kunkel Mill Service, 11715 Drury, Kansas City 34, Mo.

SALE — ALUMINUM TANKS, 7,000 GAL., 4,000 gal; spiral ribbon mixers, 336, 200, 75 cu. ft.; dewatering presses, Davenport No. 1A, No. 2A, No. 3A; Louisville 3-roll 36"; six Louisville Rotary Steam Tube Dryers 6'x50', 6'x30', 6'x25'. Perry, 1403 North 6th St., Philadelphia 22, Pa.

VIKING MOLASSES PUMP, 3 H.P. ELECtric motor, V-belts and pulleys (excellent condition), 70 ft. conduit pipe with wiring, 20 ft. 2" pipe, 9 ft. 4" intake pipe, one Lukenheimer 2" valve, 2 switch boxes, 2-way switch $400. Don Rausch Farm Store Service, Woodlane Drive, Sleepy Eye, Minn.

WE HAVE AVAILABLE TWO COMBINAtion bag and bulk semi-trailers. Available in air or auger unloading systems. These are used trailers and are priced very reasonably. Also, several good used truck-mounted feed bodies at reasonable prices. Write or call collect—Fairfax 0516, Walford, Iowa. Gaddis Bros. Mfg. Co., Inc.

HELP WANTED

SALESMAN TO SELL BULK FEED bodies in Midwest, Northeast, Northwest and South territories. Gaddis Bros. Mfg. Co., Inc., Walford, Iowa.

ASSISTANT SALES MANAGER FOR CENtral states feed manufacturer. Opportunity for growth with company. Address Ad No. 4141, Feedstuffs, Minneapolis 40, Minn.

EXCELLENT SIDE-LINE OR FULL TIME item for salesman selling to feed, grain, farm equipment dealers and farmers. Liberal commissions. Replies will be held confidential. Write Doane Agricultural Service, Inc., St. Louis 3, Mo.

EXPERIENCED FEED SALESMEN OR feed sales trainees—we are interviewing for future assignments in Minnesota, Iowa and Wisconsin areas. Write: Feed Division, General Mills, Inc., 3033 Excelsior Ave., Minneapolis 16, Minn.

ARE YOU A TOP DISTRICT SALES MANager or top supervisor and ready to step up, then it will pay you to contact us for a top position, top salary, company benefits, etc. Contact at once, Loret Mills, Division Seed-Feed Supply Co., Inc., Chattanooga, Tenn. All replies confidential.

FEED SALESMAN WANTED FOR PROVEN area—central Illinois—we have a man retiring and need a replacement. The territory is well established and company well known. Commission rate excellent—pay is superior—contact us now. Address Ad No. 3934, Feedstuffs, Minneapolis 40, Minn.

SALES REPRESENTATIVE—FOR SOUTHwestern Mississippi by one of the South's leading feed concerns. Must be experienced and able to supply top references. Knowledge of broiler and hen operations necessary. All replies will be held strictly confidential. Address Ad No. 4171, Feedstuffs, Minneapolis 40, Minn.

E. H. BEER & CO., INC.
Machinery Division Baltimore 24, Md. Dickens 2-4606

One—Fuller Pneumatic Airveyor System, complete	ASK
Two—Sprout-Waldron Perfect Circle Sifters	$ 500.00
One—Three Pair High 9x30	1,000.00
Two—Richardson Auto Scales, 4 bu. cap. agitator with ½ H.P. motor Class C, Group G, each	750.00
One—S. Howes Horizontal Mixer, 1,500 lb. cap., 5 H.P. TEFC motor, NEW	850.00
One—No. 4 J. B. Hammer Mill, direct connected to 75 H.P. TEFC motor 220/440, 3,600 R.P.M.	1,950.00
One—Eureka No. 7 Receiving Separator, up to 2,000 bu. cap., Buhler drive	995.00
One—75 H.P., G.E. motor, 900 R.P.M. 220/440, 3-phase, 60-cycle TEFC Explosion Proof	1,250.00
Seven 12' lengths, 18" dia. sectional Screw Conveyor, per ft	10.00

We have a large stock of flour and feed mill equipment in our Baltimore warehouse. Please ask for a complete list or visit with us.

HELP WANTED

MIDWEST FEED MANUFACTURER HAS opening for experienced sales manager. Salary open. Address Ad No. 4142, Feedstuffs, Minneapolis 40, Minn.

FEED PLANT MANAGER—FOR CARACAS, Venezuela plant. Familiar with all phases of feed processing such as mixtures and over-all working of the plant. Give details of experience and salary requirements in first letter. Replies confidential. Address Mr. Hugo Rincon, 3321 Chauncey Place, Mt. Rainier, Md.

POULTRY SPECIALIST WANTED—A MAN qualified and experienced in feed sales with knowledge of poultry management and poultry diseases. One that can be responsible for finance funds for poultry projects. Good personality. College graduate. Car furnished, plus expenses away from home. Good working conditions. Excellent salary. Reply with resume to Ad No. 4151, Feedstuffs, Minneapolis 40, Minn.

ENGINEER WANTED — AGGRESSIVE, midwestern grain firm has opening for a young man with engineering experience to help plan installations and construction. Engineering degree and some operating experience either in elevator or flour mill desirable but not necessary. Salary commensurate with ability. A real opportunity to grow with an expanding company. Excellent retirement program. All replies confidential. Address Ad No. 4187, Feedstuffs, Minneapolis 40, Minn.

EQUIPMENT FOR SALE

Buy Only Seedburo
Guaranteed Factory Rebuilt
STEINLITE
MOISTURE TESTERS

Remember all Seedburo Steinlites are rebuilt by the Fred Stein Laboratories in Atchison, Kansas, who are the manufacturers. Each unit is completely rebuilt and carries full year guarantee. For details and prices write Dept. FS.

SEEDBURO EQUIPMENT CO.
618 W. Jackson Blvd. Chicago 6, Ill.

BUSINESS OPPORTUNITIES

WANTED TO PURCHASE FEED MILL IN central or northern Illinois. Please give full particulars. Address Ad No. 4153, Feedstuffs, Minneapolis 40, Minn.

FOR SALE — COMPLETE FEED MILL, heart of central Texas, railroad trackage. Equipped to handle grain in or out by rail or truck. 10,000 sq. ft. concrete building. Home Mix Feed Co., 2211 Hidalgo St., Austin 2, Texas; GR 29226.

Contact—
MID-WEST BUSINESS EXCHANGE
When you want to Buy or Sell
ELEVATORS or
FEED MILLS
Ohio - Indiana - Illinois
Excellent Opportunities
Halbert C. Smith Plymouth, Ind.

BUSINESS OPPORTUNITIES

WANTED TO BUY FEED MILL IN EASTern Iowa capable of producing 10 or more tons per hour. Address Ad No. 4152, Feedstuffs, Minneapolis 40, Minn.

RETAIL CASH AND CARRY FEED, FARM supply, and complete pet shop in booming area. Roy J. Hrach, 38020 Sixth St. East, Palmdale, Cal.

FOR SALE—FEED MILL IN SOUTHERN California. A profitable and growing business, completely equipped for chicken, turkey and dairy feeds. Ample local grain and storage facilities. Wonderful opportunity for family operation. Address Ad No. 4129, Feedstuffs, Minneapolis 40, Minn.

COMPLETE MODERN EFFICIENT FEED mill and warehouse for sale at sacrifice. Operated at $1,500,000 annual volume. Excellent transit privileges. Can pay itself off in 3 to 5 years. Will sell at a fraction of reproduction costs. Located in western New York State. For details and brochure contact Pierce & Cash, Inc., Realtors, Exclusive Agent, 21 Main St., Hamburg, N.Y.; EM 5680. Ask for Jerry O'Keefe.

FOR SALE—COMPLETE SMALL PROCessing plant, with the following: One Polar Aluminum Freezer, No. 1810 with 3 H.P. ref. unit, 10 ft. x 18 ft. x 8 ft.; one Reel-O-Matic Scalder; one Flash Picker; one Pinning Wheel; one Eviscerating Pan for P.W., galvanized; one Standard Drawing Table, 8S large size; three E Z Roll Chill Tanks. Would trade for most anything. This equipment bought new in 1952. Contact V. W. Stebbins, Gothenburg, Neb.; Phone JE 73631.

SITUATIONS WANTED

FEED EXECUTIVE SEEKS SALES MANagement position with sound, aggressive organization. Extensive experience in all phases manufacturing, purchasing and general management. Address Ad No. 4169, Feedstuffs, Minneapolis 40, Minn.

MANAGER OR ASSISTANT MANAGER— Experienced in feed manufacturing, retailing, grain handling, farm and college business administration background. 34 years old. Will relocate. Address Ad No. 4157, Feedstuffs, Minneapolis 40, Minn.

NEW MANUFACTURERS' AGENCY CONcentrating in western Michigan, calling on feed dealers, mills, hatcheries and large feeders, interested in additional non-conflicting lines. Address replies to Ad No. 4179, Feedstuffs, Minneapolis 40, Minn.

DO YOU NEED 20 YEARS' KNOW-HOW in your business? I have over 20 years' experience with line company in purchasing, advertising, formulation, customer contact and general managment. Willing to relocate. Prefer upper midwest or northwestern states. Available immediately. Address Ad No. 4197, Feedstuffs, Minneapolis 40, Minn.

MANUFACTURERS, IMPORTERS, PRODUCERS—OPPORTUNITY TO INCREASE YOUR BUSINESS

Newly formed company with personnel trained in animal nutrition seeking products to sell on a brokerage basis, in states of New York, New Jersey, Delaware, Maryland and Virginia. Send complete information to Ad No. 4190, Feedstuffs, Minneapolis 40, Minn.

MACHINERY WANTED

ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 2, Md.

WANTED TO BUY — RICHARDSON scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

ROTARY DRYER, DIRECT FIRED, 8 FT. diameter, 30 ft. or longer. Also hammermill, 36 to 48 in. opening, complete with 100 to 150 H.P., 3-phase, 220-volt, 60-cycle, 1,800 R.P.M. motor and starter. Address Ad No. 4066, Feedstuffs, Minneapolis 40, Minn.

Use Feedstuffs WANT ADS for RESULTS

FOR SALE

Modern Feed Mill, located in Central New York State, serving diversified Dairy and Poultry area. This mill was built and equipped new 8 years ago, and its continuous batch mixing and modern handling equipment requires a minimum of labor. Bulk ingredient storage—1,000 tons; Silos—15,000 bushels. Delivery equipment of 8 late model trucks includes 2 bulk pneumatic units. Served by two railroads, with transit privileges available. This is a going concern, doing approximately $1,000,000 annually, principally retail, and still growing. It has been continuously profitable, and possesses outstanding potentials. Price asked is under recent appraisal. Owner desires to retire.

If you are considering decentralization, you should investigate this. Principals only, please. Address Ad No. 4147, Feedstuffs, Minneapolis 40, Minn.

BANKRUPTCY SALE!

Pursuant to an Order of the
HONORABLE JOSEPH FISHBERG
Referee in Bankruptcy

A. J. WILLNER, *Auctioneer*

WILL SELL ON

TUESDAY, OCTOBER 21, 1958 at 11 A.M.

at 28 SOUTHARD AVE.

in Farmingdale, Monmouth County, New Jersey

ASSETS OF THE

F. L. F. FARMERS COOPERATIVE ASSOCIATION Inc.

REAL ESTATE

Approximately 24 Acres of Land Divided Into 3 Separate Tracts

Tract 1—App. 15 acres on Southard Ave.
Tract 2—App. 2 acres bordering on Southard Ave.
Tract 3—7 acres adjoining tract 2 and bordering on Southard Ave.

ALL TRACTS ON PENN. R. R. SIDING

Situated on this land are the following buildings:

- **Complete Mill occupying 1½ acres of land**
- **Office Building with 4 offices**
- **Store Building, adjacent to garages and warehouse**

PLUS ADDITIONAL LAND IN TOMS RIVER OCEAN COUNTY, N. J.
Approximately 18½ Acres

2 Munson Mill Mixers, 1 complete Screw Conveyor Unit, Complete Grain Cleaning Machines, Conveyors and Chutes throughout building, and all other plant equipment unless otherwise ordered.

Office Equipment and Furniture

2 Remington Posting Machines, 1 Freiden Calculator, 1 Gestetner Mimeo Machine, 2 Remington Adding Machines, 1 Remington Electric Printing Calculator, 1 Remington Electric Typewriter, 1 Burroughs Billing Machine, 1 Electric Addressograph Mailing Machine, 1 Thermo-Fax Copying Machine, 1 Remington Adding Machine, Filing Cabinets, Desks, Chairs and other miscellaneous office equipment and furniture.

Assorted Materials

Vehicles

4 Sprout-Waldron Bulk Truck Units mounted on G.MC. double axle chassis
8 G.M.C., REO & CHEVROLET TRUCKS
2 Mobilift Gas. Forklifts

MORRIS M. RAVIN, RECEIVER

744 BROAD ST., NEWARK, N. J.

ATTORNEYS FOR RECEIVER:

EPSTEIN & FLUHERTY
702 MARKET ST.
CAMDEN, N. J.

HAROLD KRIEGER
921 BERGEN AVE.
JERSEY CITY, N. J.

AUCTIONEER'S OFFICE

11 COMMERCE ST., NEWARK, N. J.—MArket 3-5690 - 5649

INSPECTION: MONDAY, OCTOBER 20, 1958—10 A.M. to 4 P.M.

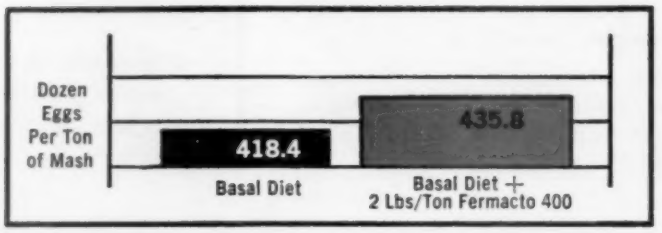
BY THE ONLY STANDARD THAT COUNTS... PROFITABLE EGG PRODUCTION... LAYING MASHES PERFORM BETTER WITH...

Borden's fermacto 400

A unique blend of multiple fermentation factors...only two pounds per ton, on an all-mash basis, provide complete unidentified growth factor fortification ... at a cost of only about *twenty-five cents.*

Tests have shown that Fermacto 400, when added to egg mashes already considered complete, can help produce as many as seventeen dozen *extra* eggs per ton of feed. Here is practical proof of performance:

48-week test on Single-comb White Leghorns in laying house



OVER 17 DOZEN EXTRA PER TON OF MASH

Results of a number of practical feeding trials are available for review. Write Borden's, or ask your Borden field representative for these test data ... to see just what Fermacto 400 can mean to *your* program.

THE *Borden* COMPANY
FEED SUPPLEMENTS DEPARTMENT
350 Madison Avenue • New York 17, New York

BETTER FEEDS THROUGH RESEARCH

Laboratories and test farms at Elgin, Illinois.

***Borden's* 300**

... for more efficient, more economical egg production ... without wasteful over-fortification ... and, at a cost of only about $1.10 per ton.

All necessary vitamins and minerals have been blended with Fermacto 400 in one convenient, complete supplement for laying mashes. Write for details.

AAFCO

(Continued from page 1)

the anniversary event, speakers also dealt with nutrition research progress.

A total of 316 persons registered for the convention, including 98 control officials from 43 states, four officials from Canada, one from Puerto Rico, 18 from federal agencies, and 194 industry representatives. The number of persons from federal agencies was another indication of the cooperation between the Food and Drug Administration and state control officials.

New Officers

L. A. Koehler, Bismarck, N.D., was elected president of the AAFCO for the coming year, succeeding R. F. Kneeland, Jr., FDA, Washington. Marvin H. Snyder, Charlotte, W. Va., was named vice president, succeeding Mr. Koehler. Bruce Poundstone, Lexington, Ky., was elected secretary, succeeding L. E. Bopst of College Park, Md., who is retiring from the office of secretary after 31 years in the position. (Also see accompanying story.) R. T. Wetherbee, Burlington, Vt., was reelected treasurer. Mr. Bopst was named to the executive committee to succeed Mr. Snyder, and C. R. Phillips, Ottawa, Canada, was reelected to the committee.

To ease the heavy duties of the former position of executive secretary, in 1957 this office was divided into the offices of secretary and treasurer. Now, it is expected, some of the work carried on by the secretary will be further distributed among other control officials.

Among the resolutions adopted was one extending appreciation and best wishes to Mr. Bopst and praising him for his contribution to the association's progress.

Medicated Feeds

The association's medicated feed labeling committee presented a report on some supplementary labeling recommendations. (See story on page 4.)

The association also adopted a report of the committee on analytical methods for new medicated products, with special emphasis on an item which reads: "The AAFCO will accept the proposition that feeds containing a new drug for which a method has been proved satisfactory by the AOAC collaborative procedure would not be denied distribution on account of methodology."

Dr. F. W. Quackenbush of Indiana, chairman of the committee, said the group has hoped that analytical methods would be available when a new drug is introduced. Meanwhile, task groups made up of industry and control officials have been working on methods for various new drugs.

Also to be included in the association's official publication is the drug investigator's report, which included changes in the list of drugs used in feeds.

Other action in the field of drugs included establishment of a committee to study the problem of custom mixing of drugs in feeds. This followed a report by Rodney Berry of Virginia, the investigator, on a survey of control officials on custom mixing of drugs. He said conclusions cannot yet be drawn. The survey of state officials showed, among other things, that 35 states permit this, while one does not, with others giving varied answers. Eight states require registration of the mix, and 27 do not; some have other requirements. Eleven states require medicated feed labeling of the mix, and a number of states have certain other requirements. One question raised in the discussion was the place of FDA if these custom mixes cross state lines.

The feed additives committee had no report, but Mr. Kneeland commented that it appeared any problems were being worked out.

Another problem in connection with medicated feeds was discussed at a joint meeting held by the AFMA feed control relations committee and the AAFCO states relations committee Oct. 14. This dealt with the use of "numbers" on medicated feed labels and possible problems in connection with protein percentage numbers in the brand name and in view of a resolution on numbers and brand names. Several suggestions were discussed—inclusion of protein percentage and % sign if there is another number not indicating protein; use of the % sign with protein figures; placing of the code number at the end of the name; use of numbers with 3 or more digits. No conclusions were reported.

Definitions

The association adopted several tentative definitions for fats and oils, including definitions of animal fat, vegetable fat (or oil), hydrolyzed fat or oil (feed grade), esters of fatty acids, and fat product (feed grade). The definitions for the five products were developed after consultations with industry representatives.

(These and other new or changed definitions and other actions of the executive committee and the association will be detailed in next week's Feedstuffs.)

P. A. Yeats of Oklahoma, the wheat products investigator, reported that proposed new definitions for wheat products would not be offered at the 1958 meeting because of some differences with the milling industry. He said it had been hoped that the definitions could be simplified and reduced in number. The differences, he added, probably can be resolved before next year.

Action on definitions included a new tentative definition for methionine hydroxy analogue calcium; a definition of poultry by-product meal; placing of a definition of corn cob fractions in future discussion status; official recognition of additional mineral ingredients; a new tentative definition for dried tomato pomace; inclusion of calcium cyclamate and sodium and cyclamate (non-nutritive sweeteners) in the list of officially recognized ingredients; adoption of a tentative definition of feeding urea; changes in oat products definitions; several editorial and other changes in definitions of soybean products; a tentative definition of irradiated dried yeast.

The uniform feed bill and regulations committee reported some questions and possible changes in connection with the bill and regulations, and it was indicated that this would have further discussion.

The pet food committee was commended for its interest in the pet food industry, especially on labeling, and the committee was continued. Stacy Randle of New Jersey, chairman, said the new Pet Food Institute probably will be helpful in solving any problems.

Open Discussion

In addition to the discussion of "numbers" on medicated feed labels, the open session on Oct. 14 included discussions of several other topics of interest to control and feed men. One of the topics was a question on requirements to substantiate that lowering of feeding value will not result when there are requests for permission to lower guarantees on crude protein or fat. Some said that it would be necessary to modify the name of the product. Others indicated that experimental data would be adequate and that it would be a matter of judgment. A feed man commented that it is a question of permitting feed manufacturers to give the feeder maximum value rather than requiring a complete change if protein, for example, is reduced. One feed man had told of plans to reduce laying feed protein based on research findings.

There also was discussion of a proposal to simplify registration procedures by use of alternate ingredient designations on an "and/or" basis for cereal grains or for protein feeds. Leroy Schilt of the Ralston Purina Co. said control officials had been surveyed on this, and most said it would be all right on registrations but not on labels. Canadian officials indicated that they permit this on labels as well as registration. The "and/or" proposal, it was said, was suggested because of the growing complexity of feeds and formulation.

It had been planned to discuss how much advertising or identifying information of the concentrate supplier should be permitted on finished feed labels, but this was referred to the closed meeting of the control association, and it was indicated that further discussion was planned.

The increased use of bulk feeds brought a discussion of problems in the proper sampling of bulk feeds. Control officials mentioned difficulties in connection with the point of sampling and, in some cases, being able to get to bulk feeds in storage tanks.

Summaries of convention talks follow:

PRESIDENT'S ADDRESS—Ralph Kneeland, Food and Drug Administration, Washington: We must frequently reappraise the suitability of our uniform feed bill and regulations in the light of industry changes.

The recent amendment to the federal law dealing with food and feed additives, including provision for pretesting, needs to be taken into account in considering possible revisions of our uniform feed bill.

We can anticipate further development of new agents in medicated feeds that will further complicate labeling, and we must continue to work for greater uniformity and simpler and more informative labeling.

In view of more complex problems in the future, we must continue organization-wise to distribute the association workload more equitably among members. We must continue to be alert, too, to the impact of our association actions on industry and activities of state officials and avoid hasty actions or efforts to provide answers to the details and minutae that are properly the function of individual officials.

In our consideration of regulations and resolutions, we should stress the idea of guiding principles and desirable objectives rather than rigid rules that must be followed to the letter. As an association, let us emphasize guiding principles that will permit the individual official, within the framework of his own authority, to be uniform with officials throughout the country in handling of specific problems. Such guidelines should also permit the individual feed manufacturer some individuality in his practices and yet be helpful in his efforts to comply with both the law and association principles. We should not look to the association for the specific answer to every problem.

Our policies should be flexible enough to permit wise individual administrative discretion in particular instances, and be generally acceptable to the industry as a whole. We can leave to the individual manufacturer and a particular control official the settlement of disagreements over variations from the acceptable pattern or minor details of labeling.

Broad problems of feed control and knotty problems of individual officials are not always separable, but let us avoid in our formal actions efforts to cross the "i's" and dot the "t's" and thus divert our attention from matters of substance.

GUEST ADDRESS—W. E. Glennon, president, American Feed Manufacturers Assn., Chicago: There has been a close relationship over the past 50 years between the AFMA which also is observing its golden anniversary, and the AAFCO. (Mr. Glennon went on to trace the developments of the AAFCO and its cooperation with industry and the AFMA.)

Problems of definition and labeling, were it not for the control association, would have been exceedingly great.

Meanwhile, there are problems ahead as new nutritional discoveries continue. We have to keep continually up to date, and if we have an open mind and are realistic, the problems can be solved.

There is a need for improved facilities for state regulatory officials, with some progress being made in this direction. Industry is interested in control officials having capable personnel and sufficient funds. In many states, a larger amount of feed tax continues to be collected than is allocated to control.

Friendly relations between the AAFCO and AFMA will continue, and the AFMA pledges support to both state and federal officials.

DEVELOPMENTS IN MINERAL NUTRITION—Dr. George M. Briggs, National Institutes of Health, Bethesda, Md.: Several minerals have attracted special attention the last year or two. One of the most interesting findings is the discovery of nutritional importance of selenium, which prevents liver necrosis in rats when fed diets low in vitamin E. In chickens, small amounts prevent exudative diathesis, and in swine small amounts prevent liver necrosis in the absence of vitamin E. It has recently been found that the major mineral components of a ration, along with the level of unsaturated fats, are intimately connected with development of selenium deficiency signs in the chick. Meanwhile, there is no evidence that any modern natural rations are low in selenium, and there is no justification as yet for adding it to feeds.

Some workers have shown a growth effect in chickens and turkeys by adding molybdenum to rations with no known molybdenum antagonist. However, confirmation of these studies is needed before this mineral is considered an essential trace element. A recent Missouri study indicates growth effects from molybdenum in lamb rations.

Zinc has now been raised to the status of one of the most important trace elements in animal nutrition. It appears that magnesium deserves further attention as a mineral which might explain unknown nutritional effects. Much more needs to be learned about calcium and phosphorus sources and requirements.

In the future, increasing attention will have to be paid to individual minerals for these reasons: (1) The essential role of additional trace minerals will be established. (2) Animals' mineral requirements will be better defined. (3) New and cheaper sources of minerals will become available. (4) The field of mineral interrelationships will become of increasing importance.

The control official must keep abreast of new developments and be prepared to change his mind when experimental work has become established. New developments are certain to come. Also, it is important to remember that mineral requirements do not change at the state line, and it is necessary to continue to work toward uniform feed laws. And, it should be remembered that the worth of a ration must be judged eventually only on its performance in relation to its cost.

PAST AND PRESENT NUTRITIONAL RESEARCH — Dr. C. D. Caskey, Cooperative Mills, Baltimore: Early research, conducted many years ago, provided the foundation upon which modern nutritional research is built. Then during the past 50 years, continued progress has been made through the efforts of federal and state institutions, which have provided most of the data; chemical, drug and ingredient companies, whose contributions have been increasing in recent years; and feed manufacturers themselves.

Nutrition progress will continue. In fact, new standards of performance are being set almost daily. As we

(Turn to **AAFCO,** page 103)

THE FEED MARKETS

★ ★ ★ ★

Demand — Supply — Trends — Prices

Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Boston: Demand light; supply good; 400 D, 3,000 A 20¢ lb.; 300 D, 3,000 A 19½¢; 300 D, 2,250 A 18¢; 600 D, 1,500 A 17½¢; 300 D, 1,500 A 16½¢; 300 D, 750 A 14½¢; 75 D, 750 A 14½¢.

Chicago: Demand fair; supply adequate; straight A feeding oil, with 10,000 units vitamin A per gram 7@8¢ a million units of vitamin A, l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

Denver: Demand fair; trend steady; supply good; 2,250 A, 300 D 21¢ lb.

Minneapolis: 10,000 A 35¢ lb.; 300 D, 2,250 A 21½¢ lb.; 300 D, 1,500 A 20½¢ lb.; 300 D, 75 A 18½¢ lb.

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 13¼@15¾¢, 1,500 A 15¾@17¢, 2,250 A 17¼@20¢, 3,000 A 19¼@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19¾¢; f.o.b. Massachusetts, New York or Pennsylvania.

ALFALFA MEAL

Boston: Demand improved; supply adequate; dehydrated, 17% $60; suncured, 13% $47.

Ft. Worth: Demand good; limited offerings nearby shipment; 17% protein dehydrated $52, delivered Ft. Worth area, truck; Kansas dehydrated, 17%, 100,000 A $56.80, rail; $41 nominal.

Philadelphia: Demand and supply fair; 17% dehydrated $58.

New Orleans: Demand fair; trend steady; supply limited; $56@57; pellets $52@53.

Portland: Demand improved; trend firmer; supply ample; suncured, 15% $40; dehydrated $66.

St. Louis: Demand slow; trend steady; supply ample; 13% fine suncured $40; dehydrated, 17%, 100,000 A $51.

Omaha: Demand good; supply ample; 17% dehydrated, 100,000 A units, bulk pellets $41; sacked meal $46, Omaha basis.

Los Angeles: Demand fair; trend firmer; supply adequate; dehydrated meal, 17% protein, 100,000 A $49 bulk; dehydrated pellet meal, 17% protein, 100,000 A $51 bulk; suncured crumbles, 15% protein $43 @44 bulk; suncured meal, 15% protein $41 @42 bulk.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $58.

Seattle: Demand fair; trend steady; supply good; 15% protein suncured $43, truck loads; 136,000 A unit dehydrated $69, truck loads.

Denver: Demand fair; trend steady; supply good; dehydrated $42.

Chicago: Demand fair; supply adequate; 17% dehydrated, with 100,000 units vitamin A guaranteed $51.50@52; 13% No. 1 fine grind $41.

Memphis: Demand poor; trend higher; supply scarce; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $48.

Buffalo: Demand and supply fair; trend steady to higher; $60.50, Boston.

Kansas City: Demand fair; trend steady; supply adequate for demand but tightening up as plants operate on reduced schedule or shut down altogether, hay in so light in places that it has forced plants to shut down a month earlier than last year in some cases; dehydrated alfalfa with 17% protein and 100,000 units vitamin A guaranteed on arrival: reground pellets $48, sacked; reground oiled $50, sacked; pellets $43, bulk; meal with 18% protein, 125,000 units A $52, sacked; suncured meal demand is slow with supplies adequate; No. 1 fine ground $34@35, No. 1 ¼-in. $32@33, No. 2 ¼-in. $28.50@29, sacked.

Minneapolis: Trend firm; supply ample; demand fair; reground pellets, 17% dehydrated alfalfa, 100,000 units vitamin A $49, bulk; oiled, reground pellets $51, bulk.

ANIMAL FAT (STABILIZED)

Ft. Worth: Demand fair; supply adequate; prime tallow, tank cars 7¾¢ lb.; drums 9¼¢ lb., f.o.b. north Texas packing plants with returnable drums.

New Orleans: Demand slow; trend steady; supply adequate; 7½@8¢ lb., tank cars.

Louisville: Demand good; trend strong; supply fair to good; bleachable fancy 7¾¢ lb.; white tallow 8¾¢ lb., yellow grease 6¾¢ lb.; all up about ¼¢ lb. or more.

San Francisco: Demand fair; supply ample; bleachable fancy 8¼¢ lb.; yellow grease 6¾¢ lb.

Chicago: Demand good; supply short; bleachable fancy tallow, tank truck or carlots 7¾¢ lb.; yellow grease 7¼¢ lb.

Kansas City: Demand slow, with many manufacturers said to be using other fat sources; trend steady after increase based on national market; supply adequate; bleachable fancy tallow 7¾¢ lb., tank car.

St. Paul: Market steady at 7¾¢ lb., f.o.b. producer's plant for bleachable fancy tallow.

BARLEY FEED

Ogden: Supply average; rolled $43@48; whole $37@42.

Boston: Demand slow; supply adequate; $45.

Philadelphia: Demand dull; supply fair; pulverized $44.75.

Portland: Demand good; trend higher; supply ample; rolled $42, ground $60.

New Orleans: Demand slow; trend unsteady; supply light; $58@59.

Milwaukee: Demand good; supply fair; needles 95¢@$1.10 cwt.; ground screenings $24, sacked.

Los Angeles: Demand fair; trend firmer; supply ample; standard rolled $3.12 cwt.; standard ground $3.12 cwt.

Baltimore: Demand quiet; supply adequate; $44.50.

Chicago: Demand quiet; supply adequate; $34.

San Francisco: Demand fair; supply ample; rolled $60; ground $59.

Seattle: Demand and supply good; trend firm; $51 bulk, truck lots.

BENTONITE (SODIUM)

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30-ton carlots: $0 granular $31.50; 200 mesh fine $31.

Chicago: Demand steady; supply adequate; f.o.b. Wyoming and South Dakota shipping points: granular 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots; $0 granular $13.50 net; 200 mesh fine $13.25 net.

Denver: Demand fair; trend steady; supply ample; $24.50.

BLOOD FLOUR

Louisville: Demand fair; trend steady; supply normal; $105.

BLOOD MEAL

Ogden: Supply average; $115 in 100-lb. bags, f.o.b. Ogden.

New Orleans: Demand good; trend steady; supply light; $117@122.

Portland: Demand steady; supply ample; trend unchanged; $120.

Los Angeles: Demand slow; trend unchanged; supply adequate; $7.75 a unit of ammonia.

San Francisco: Demand good; supply tight; $7.25 a unit of ammonia.

Louisville: Demand fair; trend steady; supply ample; $105.

Chicago: Demand and supply fair; $140, guaranteed 80% protein.

BONE MEAL (STEAMED)

Boston: Demand and supply steady; $90, f.o.b. shipping point.

New Orleans: Demand fair; trend easy; supply normal; $81@86.

Ft. Worth: Demand fair; supply light; $85.

Portland: Demand steady; supply ample; trend unchanged; $95.

Los Angeles: Demand fair; trend unchanged; supply adequate; imported $73.50 in 20-ton lots.

Chicago: Demand and supply fair; $75.

Denver: Demand good; trend steady; supply fair; $75, f.o.b. Bay Shore, Cal.

San Francisco: Demand good; supply ample; $75.

Cincinnati: Demand good; trend stronger; supply fair; $95.

Seattle: Demand steady; trend firm; supply good; $85, ex-dock, truck lots.

Louisville: Demand dull; trend steady; supply ample; $85@90.

Buffalo: Demand good; trend steady; supply ample; $90.

BREWERS DRIED GRAINS

Ft. Worth: Demand fair; supply moderate; $54.40, October.

Boston: Demand good; supply adequate; 26% $57.50@58; 22% $56.50@57.

Philadelphia: Demand slow; supply fair; $55.

New Orleans: Demand good; trend steady; supply ample; $52@53.50.

Los Angeles: Demand and trend steady; supply fair; $49 bulk, $53 sacked.

St. Louis: Demand good; trend steady; supply short; $47.

San Francisco: Demand fair; supply ample; $54.

Cincinnati: Demand fair; trend steady; supply adequate; $54.50.

Louisville: Demand fair; trend easy; supply good; $53, off $1.

Chicago: Demand fair; supply adequate; 26% $46.50@47.

Buffalo: Demand and supply fair; trend steady; $50.50, bulk, Boston.

BREWERS DRIED YEAST

Boston: Demand and supply steady; 10¢ lb.

Portland: Demand good; supply limited; trend unchanged; 8½¢ lb.

Omaha: 10½¢ lb.

Los Angeles: Demand and trend steady; supply limited; 10¢ lb. in 5-ton lots; 11¢ lb. in 1-ton lots; 12¢ lb. in less than 1-ton lots.

Chicago: Demand good; supply limited; 10@11½¢ lb. in carlots; 10¾@12½¢ lb., l.c.l.

Denver: Demand fair; trend steady; supply ample; 9¢ lb; $108 ton.

Louisville: Demand fair; trend steady; supply ample; 10@10½¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb.

Seattle: Demand slow; trend steady; supply ample; $12 cwt.

St. Louis: Demand good; supply limited; 10¢ lb. in carlots; 11¢ lb. in ton lots; 12¢ lb. in less than ton lots.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New York: Carlots 9¾¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

Milwaukee: Demand good; supply limited; 10½@11½¢ lb. in carlots; 10¾@12½¢ lb., l.c.l.

Buffalo: Demand good; trend steady; supply ample; $10.65 cwt.

BUTTERMILK-CONDENSED

Philadelphia: Demand slow; supply light; $4.25 cwt.

Ogden: Supply normal; $4.40, 100-lb. drum.

Boston: Demand slow; supply light; 3½¢ lb.

New Orleans: Demand slow; trend steady; supply normal; $4.25@4.30 cwt.

Wichita: Demand good; supply insufficient; $2.85 cwt. in barrels.

Los Angeles: Demand fair; trend unchanged; supply adequate; 5½¢ lb. in 100-lb. lots; 4½¢ lb. in 500-lb. lots.

Chicago: Demand light; supply adequate; $3.25@3.50 cwt. in carlots.

San Francisco: Demand fair; supply good; $5 cwt.

Louisville: Demand slow; trend steady; supply normal; $4.25 cwt.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight and tax)

New York: Crystals $15.28, flour $10.28.
Buffalo: Crystals $16.11, flour $11.11.
Toledo: Crystals $17.96, flour $12.96.
Boston: Crystals $16.63, flour $11.63.
Limecrest, N.J.: Crystals $10.50, flour $5.50.

CALCIUM CARBONATE

Los Angeles: Demand and trend steady; supply ample; $10.25.

Cincinnati: Demand fair; trend steady; supply adequate; $8@9 cwt.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

Chicago: Demand steady; supply adequate; fine grind, plain $9.54, 100-lb. bags; bulk, in hopper cars, fine grind $7.54; bulk in boxcars $8.04; granular grind $1 premium.

Minneapolis: Fine grind, 50-lb. bag $12.25, 100-lb. bag $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

CHARCOAL

Boston: Demand and supply light; $100.

Los Angeles: Demand slower; supply adequate; trend steady; hardwood poultry $156 in less than ton lots; $144.40 in ton lots.

Chicago: Demand quiet; supply adequate; poultry charcoal $106 ton in 50-lb. multiwalls.

San Francisco: Demand steady; supply ample; $141.

COCONUT OIL MEAL

Portland: Demand slow; trend lower; supply ample; $71.50.

Los Angeles: Demand better for limited offerings; trend firmer; supply tighter; copra cake $70@72, bulk.

Seattle: Demand good; trend strong; supply ample; $76, ex-dock, Seattle (Philippine production).

San Francisco: Demand fair; supply ample; solvent $71; expeller $73.50.

COD LIVER OIL (FORTIFIED)

Boston: Demand fair; supply good; 600 D, 2,250 A 19¢ lb.; 300 D, 3,000 A 20¾¢ lb.; 300 D, 2,250 A 18½¢ lb.; 600 D, 1,500 A 18¢ lb.; 300 D, 1,500 A 15¢ lb.

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15¼¢, 1,500 A 18¼@20¢, 2,250 A 18½@21¢, 3,000 A 21¼@23¢; 600 ICU, 1,500 A 17½@19¼¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

CONDENSED FISH SOLUBLES

Los Angeles: Demand and trend steady; supply adequate; 5¢ lb.

Boston: Demand active; supply very short; 5¢ lb., nominal.

New Orleans: Demand light; trend steady; supply limited; 50% solid $89@92, f.o.b. Gulf.

Denver: Demand fair; trend steady; supply good; dried $187.40, f.o.b. Denver.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $47.80, meal $83.80.
Atlanta: Feed $53.98, meal $89.98.
Birmingham: Feed $52.64, meal $88.64.
Boston: Feed $52.84, meal $88.84.
Chicago: Feed $41, meal $77.
Cleveland: Feed $49.14, meal $85.14.
Denver: Feed $51.51, meal $87.51.
Ft. Worth: Feed $49.96, meal $85.96.
Indianapolis: Feed $46.36, meal $82.36.
Kansas City: Feed $41, meal $77.
Louisville: Feed $48.21, meal $84.21.
New Orleans: Feed $51.20, meal $87.20.
New York: Feed $52.43, meal $88.43.
Norfolk: Feed $51.71, meal $87.71.
Philadelphia: Feed $52.02, meal $88.02.
Pittsburgh: Feed $49.96, meal $85.96.
St. Louis: Feed $41, meal $77.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $51.

Louisville: Demand dull; trend steady; supply ample; $52.45.

COTTONSEED OIL MEAL

Boston: Demand fair; supply ample; $72.

Ogden: Supply normal; 41% $63@68.

Philadelphia: Demand dull; supply fair; $71.

New Orleans: Demand slow; trend weaker; supply ample; $66@67.

Wichita: Demand slow; supply ample; 41% old process $63.

Ft. Worth: Demand fair; supply adequate; carlots, 41% old process $57; solvent $57.60@58; pellets $2 additional; cottonseed hulls $16.

Portland: Demand slow; supply ample; trend lower; $61.

Los Angeles: Demand fair; trend steady; supply adequate; local production $50, bulk.

Omaha: Demand fair; supply ample; 41% solvent $58, bulk, Omaha basis.

St. Louis: Demand slow; trend steady; supply ample; solvent $58.

San Francisco: Demand good; supply ample; expeller $57.90; solvent $62.70.

Cincinnati: Demand fair; trend steady; supply adequate; old process $65.

Seattle: Demand fair; trend steady; supply good; 41% expeller process $69, truck lots.

Louisville: Demand slow; trend slightly stronger; supply normal; old process $63.70, new process $62.70.

Chicago: Demand and supply fair; hydraulic $53; solvent $52.50, basis Memphis.

Denver: Demand and supply good; trend steady; $62.

Atlanta: Demand good; trend steady; supply ample; 41% $61.

Memphis: Demand light; trend lower; supply plentiful; prime 41% protein, old process $53.50; new process, 41% solvent $52.50.

Kansas City: Demand light; trend steady after strength developed on crop report showing less cotton production than expected; supply adequate; old process meal $54, sacked, Memphis; solvent $52.50@53.

Buffalo: Demand fair; trend steady; supply adequate; $72, Boston.

CURACAO PHOSPHATE

New York: Trend steady; ground Curacao phosphate in 100-lb. bags $48, f.o.b. cars or trucks, New Orleans, Jacksonville, Fla., or Philadelphia.

D ACTIVATED ANIMAL STEROL, POWDERED

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 15¢ lb., warehouse.

Kansas City: Demand fair; trend steady; supply ample; 1,500 ICU 9¾@10¢ lb.; 3,000 ICU 11½@12¢ lb. in ton lots or larger.

New York: Trend steady; price per lb. in 50- and 100-lb. bags or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

D ACTIVATED PLANT STEROL, POWDERED

Chicago: Demand good; supply adequate; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots; less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Tupelo, Miss.: Minimum phosphorus 13%, minimum calcium 31%, maximum fluorine .12%, $51 net ton, f.o.b. Tupelo in 100-lb. multiwall bags, $48 in bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum calcium 36%, maximum fluorine .18% $59.12 net ton, f.o.b. Wales in 100-lb. multiwall bags, $3 less in bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum flourine .19% $71.50, net ton, f.o.b. Houston, 100-lb. multiwall paper bags; $68.50 in bulk.

Coronet, Fla.: Minimum phosphorus 17%, minimum calcium 34%, maximum fluorine .17%, carload $60, truckload $60.75, net ton, f.o.b. Coronet in 100-lb. multiwall bags, $57 and $57.75 in bulk.

Cincinnati: 18% phosphorus $81; 13% phosphorus $64.98.

DICALCIUM PHOSPHATE

Portland: Demand steady; supply ample; trend unchanged; $115.

Texas City, Texas: 18.5% minimum phosphorus, 21% minimum calcium, 24% maximum, granular $77.70 net ton, f.o.b. Texas City in 100-lb. multiwall bags; bulk, boxcars and hoppers, $3 net ton less than bagged material.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Chicago: Stock food grade, 18.5% phosphorus, 20,000 lb. or more $83.25 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn.; less than 20,000 lb. $93.25; 21% phosphorus, 20,000 lb. or more $94.50, basis Chicago Heights and Nashville; less than 20,000 lb. $104.50; bulk boxcars or hoppers $3 net ton less than bagged material.

Bonnie, Fla.: Minimum phosphorus 18½%, granular $83.25; freight equalized with closest producing point, carload basis.

Minneapolis: 18.5% phosphorus, 24% calcium granular or fine ground $94.10, delivered; $3 less in bulk.

Trenton, Mich.: Minimum phosphorus 18½%, maximum fluorine .03% guaranteed $83.25, f.o.b. Trenton in 100-lb. multiwalls; minimum phosphorus 21%, maximum fluorine .03% guaranteed $94.50, f.o.b. Trenton in 100-lb. multiwall bags.

Denver: Demand fair; trend steady; supply short; $89.50.

DISTILLERS DRIED GRAINS

Boston: Demand fair; supply short; light $67, dark $68.

Philadelphia: Demand slow; supply light; $67, both dark and light.

San Francisco: Demand fair; supply ample; solubles $85.

Cincinnati: Demand poor; trend steady; supply adequate; by truck $58.50.

Seattle: Demand good; trend firm; supply ample; $67, truck lots.

Louisville: Demand good; trend steady; supply fair; production increasing; bourbon grains: light $57, dark $59, solubles $77.

Buffalo: Demand and supply fair; trend steady; $63, bulk, Boston.

DRIED BEET PULP

Ogden: Supply normal; $38@42.

Milwaukee: Demand and supply good; molasses $49.50, plain $49.50.

Ft. Worth: Demand fair; supply sufficient; carlots, 50-lb. papers: O-N-D plain or molasses $58, delivered Ft. Worth.

Portland: Demand slow; supply limited; trend unchanged; $50.

Boston: Demand fair; supply adequate; $56.

New Orleans: Demand fair; trend steady; supply ample; $60@61.

Los Angeles: Demand and trend steady; supply adequate; molasses $42.75@42.90, bulk.

San Francisco: Demand good; supply fair; $40.40.

Seattle: Demand slow; trend steady; supply good; $45, carlots.

Atlanta: Demand fair; trend steady; supply ample; $63.10.

Buffalo: Demand and supply fair; trend steady to higher; $56.50, Boston.

DRIED BUTTERMILK

Boston: Demand good; supply tight; 11¢ lb.

Milwaukee: Demand good; supply fair; $10 cwt.

Los Angeles: Demand fair; trend unchanged; supply tight; 11¢ lb.

Ogden: Supply average; $7.25, 100-lb. bag.

New Orleans: Demand slow; trend steady; supply ample; $10.50@11 cwt.

Chicago: Demand and supply fair; medium acid $9.75@10; sweet cream $10.25 cwt. in carlots.

San Francisco: Demand fair; supply ample; 11¢ lb.

Louisville: Demand slow; trend steady; supply normal; 11@11½¢ lb.
Buffalo: Demand good; trend steady; supply limited; $11.35 cwt.

DRIED CITRUS PULP

Los Angeles: Demand and trend steady; supply tight; orange pulp $41 bulk; lemon pulp $39 bulk.
New Orleans: Demand fair; trend steady; supply ample; $52.50@56.50, f.o.b. Florida.
Boston: Demand slow; supply light; $49.50, f.o.b. Florida points.
San Francisco: Demand good; supply fair; meal $54.
Atlanta: Demand good; trend steady; supply limited; $56.50; meal $51.50.

DRIED SKIM MILK

New Orleans: Demand slow; trend steady; supply normal; $11.50@12 cwt.
Milwaukee: Demand good; supply fair; $11 cwt.
Los Angeles: Demand fair; trend unchanged; supply adequate; 14¢ lb. in less than ton lots; 13¾¢ lb. in ton lots.
Ogden: Supply normal; $15.15, 100-lb. drum.
Boston: Demand and supply fair; 12¢ lb. in ton lots.
Philadelphia: Demand slow; supply light; $12.50 cwt.
Portland: Demand good; supply ample; trend unchanged; 13¢ lb.
Minneapolis: Steady trend; fair demand; adequate supply; $10.75@11 cwt.
Chicago: Demand good; supply light; $10.75 cwt. in carlots.
San Francisco: Demand and supply fair; 13½¢ lb.
Cincinnati: Demand fair; trend steady; supply adequate; 10¼@10½¢ lb.
Louisville: Demand slow; trend steady; supply ample; 11@11½¢ lb.
Buffalo: Demand fair; trend steady; supply ample; spray $10.65 cwt.; roller $11.50.

DRIED WHEY

Philadelphia: Demand slow; supply light; $6.25 cwt.
Portland: Demand good; supply ample; trend unchanged; $7 cwt.
New Orleans: Demand good; trend steady; supply adequate; $5.50@5.75 cwt.
Boston: Demand steady; supply plentiful; 5½¢ lb., f.o.b. plant.
Ogden: Supply average; $6.90, 100-lb. bag.
Ft. Worth: Demand fair; supply adequate; carlots, standard $6 October; $6.25 October, ton lots, f.o.b. warehouse, Ft. Worth.
Los Angeles: Demand and trend steady; supply adequate; $6.16 cwt. in carloads; $6.40 cwt. in l.c.l.
Kansas City: Demand fair; trend firm; supply lighter in seasonal trend; $5.50 cwt., producers' plants for regular or partially delactosed.
Minneapolis: Firm trend; fair demand; tighter supply; $5.50 cwt., producers' points for both regular and partially delactosed.
San Francisco: Demand steady; supply good; $5.50 cwt.
Cincinnati: Demand fair; trend steady; supply adequate; $6.15 cwt.
Seattle: Demand steady; trend firm; supply good; $6.40 cwt., ex-warehouse, l.c.l.
Louisville: Demand slow; trend steady; supply ample; 6@6½¢ lb.
Chicago: Demand fair; supply adequate; $5.25@5.50, f.o.b. plant.

FEATHER MEAL (HYDROLYZED)

Los Angeles: Demand and trend steady; supply short; $1.25 a unit of protein.
Ft. Worth: Demand good; supply very limited; 85 to 87% protein $105, f.o.b. trucks north Texas plants.
Boston: Demand steady; supply light; $85, f.o.b. shipping point.
Atlanta: Demand fair; trend steady; supply ample; $93, f.o.b. Alabama and Georgia producing points.
Salisbury, Md.: Good demand; limited supply; $93, bulk, f.o.b. producers' plants.

FISH MEAL

Boston: Demand constant; supply very short; $140, f.o.b. shipping points.
Ft. Worth: Demand excellent; offerings very light; last sales of Peruvian 65% protein $160, f.o.b. Houston, October.
New Orleans: Demand light; supply limited; trend steady; menhaden 60% $143@145; scrap $134@135, f.o.b. Gulf.
Ogden: Supply normal; $2.20 a unit, f.o.b. Coast; 65% $151@153.
Portland: Demand slow; supply ample; trend lower; $2.20 a unit.
Milwaukee: Demand and supply fair; 60% $157, Milwaukee.
Los Angeles: Demand good; trend firmer; supply limited; local production, 60% protein $2.20@2.25 a unit, sacked.
Minneapolis: Steady trend; fair demand; adequate supply; 70% herring $2.25 a unit of protein, West Coast.
Chicago: Demand good; supply very tight; eastern menhaden fish meal, 60% protein $150; Gulf, nominally $146; western blended, 60% protein $2.10 a unit of protein; delivered Midwest points $170; Northwest herring-salmon blend $131.50; Canadian herring, 73% protein $2.25 a unit of protein, subject to production.
Denver: Demand fair; trend steady; supply good; $2.15 a unit of protein, f.o.b. West Coast.
Atlanta: Demand good; trend strong; supply extremely limited; 60% $158, nominal.
San Francisco: Demand fair; supply ample; Peruvian fish meal $2.20 a unit of protein.
Cincinnati: Demand fair; trend steady; supply adequate; $164.
Seattle: Demand good; trend easy; supply limited; $2.40 a unit protein, ex-dock, Alaska herring.
Louisville: Demand slow; trend strong; supply light; $165.
Buffalo: Demand very good; trend higher; supply very limited; 60% protein, menhaden $165 bulk, $170 sacked.

HAY

Los Angeles: Good interest, with moderate offerings of top grades; U.S. No. 1 $32@34; U.S. No. 2 leafy $29@31; U.S. No. 2 green $27@29; U.S. No. 2 $24@26.
Ft. Worth: Demand fair for alfalfa, practically nil for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $36@38, No. 2 $34@36; prairie No. 2 $26@28; No. 2 Johnson grass $22@24, delivered Texas common points.
Ogden: Supply normal; $1 bale; $15 ton in field, $18 in barn.
Boston: Demand fair; supply adequate; No. 2 timothy $40@42; No. 2 red clover $43@45.
Philadelphia: Demand slow; supply fair; $32@35.
Wichita: Demand poor; supply ample; prairie $8@10, alfalfa $10@12.
Portland: Demand good; trend higher; supply limited; $28.
Cincinnati: Demand poor; trend steady; supply adequate; No. 1 timothy $24; No. 1 second cutting green alfalfa $31; mixed $27; wheat or oat straw $19.
Seattle: Demand slow; trend firm; supply good; alfalfa, U.S. No. 2 green $30, delivered, truck lots.
Louisville: Demand dull; trend steady; supply ample; northern hay, any variety, No. 1 $35, No. 2 $33; straw $20.
Denver: Demand fair; trend steady; supply ample; alfalfa, third cutting $25, first cutting $24, delivered in Denver.

HOMINY FEED

New Orleans: Demand slow; supply adequate; trend steady; $48@49.50.
Boston: Demand and supply steady; $53.50.
St. Louis: Demand fair; trend lower; supply ample; yellow $40.
Milwaukee: Demand good; supply fair; $45.
Kansas City: Demand light; trend steady; supply adequate for light demand; yellow $33 bulk, white $32 bulk; $3.50 to $4 more for sacks.
Chicago: Demand fair; supply adequate; $44.50@45.
Memphis: Demand nil; trend steady; supply ample; white $47, yellow $47.
Cincinnati: Demand good; trend steady to higher; supply adequate; $48.
Seattle: Demand fair; trend easy; supply good; $52, carlots.
Louisville: Demand slow; trend easy; supply ample; $47.
Buffalo: Demand good; trend higher; supply fair; $51.50, bulk, Boston.

LINSEED OIL MEAL

Milwaukee: Demand good; supply fair; old process $67.50; new process $60.50.
Omaha: Demand fair; supply ample; 34% solvent $56.30, bulk; 32% old process $62.80, Omaha basis.
Los Angeles: Demand fair; trend easier; supply adequate; local production, 29% protein $59.50, bulk.
Ft. Worth: Demand slightly improved; supply adequate; carlots, 34% solvent; October $74.50@75, November-December $75.50@76; pellets $2.50 premium.
Boston: Demand fair; supply adequate; $72.50.
Philadelphia: Demand and supply fair; 34% $72.50.
New Orleans: Demand slow; supply adequate; trend steady; $67.50@68.
Wichita: Demand slow; supply ample; 34% $74.50.
Portland: Demand slow; trend lower; supply ample; $75.
Minneapolis: Steady trend; normal demand; adequate supply; solvent $50 bulk for spot, $51 for November-December; expeller $57 bulk.
Kansas City: Demand fair, with export interest adding to total demand picture; trend steady; supply adequate; solvent meal $50@50.50, bulk, Minneapolis; old process $57.
San Francisco: Demand fair; supply ample; $64.
Cincinnati: Demand poor; trend steady; supply adequate; new process $67; old process $72.50.
Seattle: Demand fair; trend steady; supply limited; $78, car loads, 34% protein.
Louisville: Demand dull; trend steady; supply ample; old process $75.40, new process $68.90.
Chicago: Demand fair; supply adequate; solvent $54.50@55; expeller $61.50, basis Minneapolis.
Denver: Demand fair; trend steady; supply good; $69.

MALT SPROUTS

Boston: Demand and supply limited; $42.50.
New Orleans: Demand fair; trend steady; supply limited; $45@46.50.
Milwaukee: Demand good; supply fair; odd weights $42; even weights $43.50.
Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $45@48.
Chicago: Demand fair; supply adequate; No. 1 $43.50@44.

MEAT AND BONE MEAL

St. Louis: Demand fair; trend firm; supply adequate; $112.
Los Angeles: Demand easier; trend unchanged; supply adequate; 50% protein $2.15@2.20 a unit, bulk.
Boston: Demand light; supply good; $1.50 a protein unit; converted 50% $57.50.
New Orleans: Demand fair; trend steady; supply average; $111@112.75.
Ogden: Supply normal; $110 in 100-lb. bags.
Wichita: Demand fair; supply sufficient; 50% $115, f.o.b. plant; 55%, no quotations, no offerings.
Ft. Worth: Demand slow; supply adequate; meat and bone, 50% $100@102.
Portland: Demand slow; supply ample; trend lower; $2.15 a unit protein.
Omaha: $110.
San Francisco: Demand good; supply fair; $2.10 a unit of protein.
Cincinnati: Demand good; trend firm; supply fair; 50% meat and bone scraps $100.
Seattle: Demand good; trend steady; supply fair; $115, ex-warehouse, 50% protein.
Louisville: Demand fair; trend steady; supply ample; $100.
St. Paul: Weaker trend; very poor demand; ample supply; 50% meat scraps $102@109.
Kansas City: Demand fair; trend steady; supply adequate; 50% meat and bone scraps $105@107.50.
Chicago: Demand fair; supply tight; 50% protein $109@105.
Denver: Demand good; trend steady; supply ample; 50% $95 bulk, $98 bags.
Buffalo: Demand good; trend steady; supply ample; 50% meat scraps $97.50 bulk, $102.50 sacked.

MILLFEED

Minneapolis: Steady trend; good demand for bran; middlings off and demand for red dog disappearing; adequate supplies; bran $31.50@32, middlings $30.50@31.50, flour midds. $38@39, red dog $41@43.
Kansas City: Demand fair; trend steady; supply adequate with bulk middlings plentiful; bran $31.25@32, shorts $31@31.75, sacked; bran $26@26.75, shorts $27.75@28.50, middlings $26.75@27.50, bulk.
Wichita: Demand fair to good; supply adequate; basis Kansas City: bran $31.50@32, shorts $31.50@32; bran was unchanged to 50¢ higher, while shorts declined $1.50, compared with the preceding week.
Omaha: Demand poor; supply good; sacked bran $32; sacked gray shorts $33; bulk standard midds. $29, all Omaha basis.
Ft. Worth: Demand good; supply sufficient; carlots, burlaps, prompt, bran $40.50, gray shorts $40.50, delivered Texas common points; $2 higher on bran and 50¢ higher on shorts compared with previous week.
Chicago: Heavier millfeeds dropped sharply in the Chicago area during the week ending Oct. 15, but bran and standard midds. showed only moderate declines. Market observers said demand was very slow, but sellers were pressing. The heavy supply reflects the heavy grinding operations of flour mills for the last several weeks. Quotations: bran $34.50@35.50, standard midds. $35@36, flour midds. $46@47, red dog $47.50@50.
St. Louis: Demand fair; trend steady; supply ample; bran $36.75@37.25, shorts $36.50@37, sacked; bran $31@31.50, shorts $33@33.50, middlings $32@32.50, bulk.
Cincinnati: Demand fair; trend steady; supply adequate; bran $41, middlings $41.
Boston: Demand good; supply adequate; bran $47, middlings $48.50.
Buffalo: Sales were slow. There was no incentive to buy because Buffalo and western centers were on an even to slightly easier basis. Flour mill running time is back up to capacity and nearby supplies

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Kansas City, St. Louis, Chicago, Buffalo, Omaha, Toledo, Columbus, Fort Worth, Portland, Boston, Galveston, Enid, Minneapolis, Norfolk, San Francisco, Nashville, Louisville, Memphis, Houston

of millfeeds were available. Bran $37.50@38, standard midds. $38.50@39.50, red dog $50@51.50. The bulk differential on both bran and middlings widened out from $5 to $6.50.

Philadelphia: Demand and supply fair; bran $46.50, standard midds. $47, red dog $66.

New Orleans: Demand fair; trend steady; supply adequate; bran $43.25@44, shorts $43.50@44.25.

Louisville: Demand slow; trend fairly steady; supply good; bran $42.80, mixed feed $43.80, shorts $44.30, middlings $43.30.

Memphis: Demand poor; trend lower; supply ample; wheat bran $38.25, gray shorts $38.25, standard midds. $38.25.

Denver: Demand good; trend steady; supply fair; bran $32, shorts $31.75.

Seattle: Demand fair; trend easy; supply ample; $40, common transit points, carlots.

Portland: Demand slow; trend lower; supply ample; $39.50.

Ogden: Supply normal; to Utah and Idaho: red bran and mill run $40, middlings $45; to Denver: red bran and mill run $47, middlings $52; to California: red bran and mill run $47.50, middlings $52.50, f.o.b. San Francisco and Los Angeles.

Los Angeles: Standard mill run $42 bulk, slow demand, easier trend, ample supplies; red bran $44@45 bulk, fair demand, firmer trend, tighter supply.

San Francisco: Demand fair; supply ample; millfeed $44.50; red bran $46.

MINERAL FEED

Wichita: Demand good; supply sufficient; all-purpose with iodine, 50-lb. blocks $95; 100-lb. bags $90, f.o.b. plant.

Ogden: Supply average; $115 in 50-lb. blocks; $103, granular, 50-lb. bags.

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $85, ex-warehouse.

Ft. Worth: Demand fair; supply ample; all-purpose granules $89, block $94; mineral phosphorus 6% granules $105, block $110; cattle-sheep mineral 7% phosphorus granules $99, block $103; hog mineral phosphorus 3½% granules $38, phosphorus 2% $78 (all in 50-lb. paper bags).

Portland: Demand fair; supply ample; trend unchanged; $42.

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Denver: Demand fair; trend steady; supply plentiful; $108.80.

MOLASSES

Ft. Worth: Demand slightly improved; supply sufficient; blackstrap 15¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $33.35, seller's market price on date of shipment.

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Milwaukee: Demand fair; supply good; blackstrap 14¢ gal., f.o.b. New Orleans.

Cincinnati: Demand fair; trend steady; supply adequate; 14¢ gal., New Orleans.

San Francisco: Demand and supply good; $25, f.o.b. cars, Richmond, Cal.

Seattle: Demand fair; trend steady; supply good; $25, tank car lots or truck lots.

Louisville: Demand slow; trend steady; supply normal; 14¢ gal., tank car lots, f.o.b. Gulf ports.

St. Louis: Demand slow; trend steady; supply ample; 14¢ gal., New Orleans.

Los Angeles: Demand and trend steady; supply adequate; $25 bulk, f.o.b. tank cars; $25.25 bulk, f.o.b. tank trucks.

Boston: Demand slow; supply plentiful; 15½¢ gal. in tank cars.

New Orleans: Demand fair; trend steady; supply ample; 15¢ gal., tank cars and trucks; 600-lb. customers' drums $9.62.

Buffalo: Demand fair; trend steady; supply adequate; 17½¢ gal., f.o.b. Albany.

Denver: Demand and supply fair; trend steady; 14¢ gal., New Orleans.

Minneapolis: Steady trend; fair demand; ample supplies; 13¾¢ gal., New Orleans.

Kansas City: Demand slow; trend steady; supply adequate; 13¾¢ gal., tank car, New Orleans, with some offerings on future supplies at 14¢.

Memphis: Demand improved; trend firm; supply adequate; blackstrap 14¢ gal., tank car, f.o.b. New Orleans, and $29.60 ton, delivered truck, Memphis.

Atlanta: Demand good; trend steady; supply practically exhausted; citrus $22.50 bulk, f.o.b. Florida producing points, immediate.

NIACIN

New York: Trend steady; $8 kilo, 10-kilo lots; $8.20 kilo, 5- and 2½-kilo lots; $8.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Los Angeles: Demand fair; trend unchanged; supply adequate; pulverized, local production $60.

Cincinnati: Demand poor; trend steady; supply adequate; reground oats $22; pulverized white oats $48; rolled oats $83.

Louisville: Demand slow; trend easy; supply ample; reground $21.30, rolled $83.30, feeding $77.30, pulverized $49.30, crimped $63.30.

Seattle: Demand fair; trend firm; supply ample; $49 bulk, truck lots.

Philadelphia: Demand slow; supply fair; pulverized white $52.50; Canadian oat feed $26; domestic oat feed $24.

Boston: Demand fair; supply adequate; white pulverized $55; reground oat feed $18.50.

Portland: Demand slow; supply ample; trend unchanged; rolled $61, ground $58, cleaned $60.

Ft. Worth: Demand improved; supply sufficient; oat millfeed $42.70; reground oat millfeed, 3% protein, sacked $21.70.

Chicago: Demand fair; supply adequate; reground oat feed $14; fine ground feeding oatmeal $70; feeding rolled oats $79@80.

Minneapolis: Steady trend; fair demand; ample supply; feeding rolled $78; pulverized $43.50; feeding oatmeal $68.50; reground $15; crimped $54.

Memphis: Demand poor; trend steady; supply ample; 3½% protein, reground oat feed $18.75.

OYSTER SHELLS

Boston: Demand and supply steady; $25 in paper.

San Francisco: Demand fair; supply ample; local $15, eastern $26.

Cincinnati: Demand fair; trend steady; supply adequate; $23.45.

Seattle: Demand and trend steady; supply good; eastern $35, carlots.

Louisville: Demand good; trend steady; supply good; in 80-lb. paper $22.85, 50-lb. paper $23.10, 25-lb. paper $25.35.

New Orleans: Demand good; trend steady; supply plentiful; $17@17.50.

Portland: Demand slow; supply ample; trend unchanged; western $34, eastern $38.50, granite grits $26, shell flour $24.

Los Angeles: Demand and trend steady; supply ample; $14.80.

PEANUT OIL MEAL

Milwaukee: Demand and supply fair; 26% $42.

Atlanta: Demand fair; trend steady; supply limited; 45% $67.

PEAT MOSS

Los Angeles: Demand fair; trend unchanged; Canadian 6.1 cu. ft. bales $3.85.

San Francisco: Demand fair; supply ample; $3.75 bale.

Seattle: Demand poor; trend easy; supply good; $2.70 bale, truck lots.

Philadelphia: Demand dull; supply fair; $2.80 bale, f.o.b. pier.

Boston: Demand and supply steady; $3.15 bale in carlots.

Portland: Demand slow; supply ample; trend unchanged; $3.25 bale.

Chicago: Demand fair; supply short; $3.60 @3.70, standard 7½ cu. ft. bale.

POTASSIUM IODIDE, U.S.P.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures, 250-lb. drums $1.35; 200 lb. in 100-lb. drums $1.35; 100-lb. drums $1.38; 25-lb. drums $1.41.

Chittenango, N.Y.: Demand good; supply adequate; 90% KI stabilized with calcium stearate, 200 lb. in 100-lb. cartons $1.35; 100-lb. cartons $1.36; freight prepaid to destination.

POULTRY BY-PRODUCTS

Ft. Worth: Demand good; supply very limited; 55% protein $110, f.o.b. north Texas plants.

Los Angeles: Demand fair; trend unchanged; $1.85 a unit of protein.

Boston: Demand fair; supply steady; $97, f.o.b. shipping points.

Salisbury, Md.: Good demand; limited supply; $100 bulk, f.o.b. producer's plant.

Atlanta: Demand fair; trend steady; supply ample; $108, f.o.b. Alabama and Georgia producing points.

RIBOFLAVIN

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram in less than ton lots in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more, freight prepaid or paid to destination.

New York: Trend steady; feed grade (in feed supplements) 4½¢ gm. in 3.36 to 16 gm./lb. mixtures, freight prepaid or paid to destination.

RICE BY-PRODUCTS

Ft. Worth: Demand fair; supply tight; carlots, rice bran $33@34, f.o.b. south Texas rice mills; hulls $2, f.o.b. mills.

Los Angeles: Demand fair; trend unchanged; supply adequate; California production, high fat content $48.

San Francisco: Demand fair; supply ample; bran $40; polished $49.

Cincinnati: Demand fair; trend steady; supply adequate; ground screenings $34; malt house $27; Canadian $25, bulk.

Ft. Worth: Demand almost nil; supply sufficient; ground $23, nominal.

Atlanta: Demand fair; trend strong; supply limited; bran $47, nominal.

SCREENINGS

Minneapolis: Supplies low; demand poor; lights $1@8; mediums $9@20; heavies $21@30; Canadian bulk $16; Canadian ground $25; flaxseed screenings $33; oil type flaxseed screenings $42, basis 15%.

Buffalo: Demand and supply fair; trend steady to higher; ground $29.50, New York, lake and rail; unground, bulk $24.50, New York.

Chicago: Demand fair; supply adequate; ground grain screenings $27.50; Canadian, bulk $18.50.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.36.
Kansas City: $24.82@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.27.

SORGHUMS

Ft. Worth: Demand fair; supply sufficient; carlots, bulk, No. 2 yellow milo $2.10 @2.12, delivered Texas common points.

Los Angeles: Demand and trend steady; milo $2.27½ cwt., bulk.

SOYBEAN OIL MEAL

Milwaukee: Demand and supply good; $48.50, bulk, Decatur.

St. Louis: Demand fair; trend lower; supply ample; 44% $60.

San Francisco: Demand fair; supply ample; $76.50.

Cincinnati: Demand fair; trend steady to lower; supply adequate; $43, bulk, Decatur.

Seattle: Demand steady; trend weak; supply ample; $84, carlots.

Louisville: Demand slow; trend easy; supply normal; $64.20, off $2.

Los Angeles: Demand slow; trend easier; supply adequate; $76@76.50, bulk.

Omaha: Demand good; supply ample; 44% $56.90, bulk, Omaha basis.

Ft. Worth: Demand fair; supply sufficient; carlots 44%: $73.50 last half October, $71.50 November-December coupled, $73 January-March coupled; 50% protein: $81 last half October, $78.50 November-December coupled, $80 January-March coupled; truck meal, 44% $68 prompt, $66.50 November-December.

Ogden: Supply normal; $81@86.

Boston: Demand slow; supply ample; bulk, f.o.b. Decatur: 44% $53, 50% $63.

Philadelphia: Demand and supply fair; trend unsettled; 44% $52.50, bulk, Decatur.

New Orleans: Demand slow; trend steady; supply adequate; $70@71.

Wichita: Demand good; supply sufficient; 44% $68, 50% $77, f.o.b. Wichita.

Portland: Demand slow; supply ample; trend lower; October $47.50, November-March $43.

Kansas City: Demand fair; trend steady to weaker; supply more readily available than has been the case; meal for Kansas City and western shipment $46@47, bulk, Decatur; unrestricted meal $48@49.

Minneapolis: Weak trend; poor demand; ample supply; 44% $40, bulk, Decatur, for Minneapolis shipment; 50% $62.50, bulk, Minneapolis.

Decatur: The soybean oil meal market dropped steadily during the week ending Oct. 15, and by the end of the period had given up $3.50@4. Traders said buying interest prevails in meal, but buyers are holding back as long as they can in the hope that the big bean crop will depress prices further. Quotations: 44% protein soybean oil meal, bulk, unrestricted, basis Decatur $49.50@50; eastern restricted $48@48.50; 50%, bulk, unrestricted, basis Decatur $61; eastern restricted $59.50@60.

Denver: Demand fair; trend lower; supply good; $67.50.

Atlanta: Demand fair; trend steady; supply ample; 44% $72.

Memphis: Demand light; trend lower; supply plentiful; prime 44% solvent $60.

TANKAGE

Louisville: Demand fair; trend steady; supply ample; $105.

Cincinnati: Demand fair; trend steady; supply fair; 60% digester $107.50.

Omaha: $112.

St. Louis: Demand fair; trend firm; supply adequate; $115.

Ft. Worth: Demand slow; supply light; 60% digester $106, f.o.b. Ft. Worth.

Wichita: Demand fair; supply sufficient; 60% $117.50, f.o.b. plant.

New Orleans: Demand fair; trend steady; supply light; $122@125.

St. Paul: Weak trend; very poor demand; ample supply; 60% digester $106 @109.

Kansas City: Demand fair; trend steady; supply light but adequate for slower demand; 60% digester $107.50@110.

Chicago: Demand and supply fair; 60% protein $107.50@112.50.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.50; in 25-lb. drums $1.55; freight allowed to destination.

Rochester, N.Y.: Demand and supply good; trend steady; 100-lb. drums $1.70 lb., 25-lb. drums $1.75 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

New York: Demand and supply good; trend steady; 100-lb. drums $1.70 lb., 25-lb. drums $1.75 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

WHEAT GERM MEAL

New Orleans: Demand good; supply adequate; trend strong; $107@109.

Chicago: Steady trend; slightly lower demand; supplies still tight; $96@100.

Buffalo: Demand fair; trend steady; supply poor; commercial grade $100, nominal.

CATTLE

(Continued from page 1)

000 head—up 10% from Oct. 1, 1957. In California, the leading western feeding state, numbers were up only 3%, while numbers in Colorado, the second leading western feeding state, were up 26%.

Cattle and calves placed on feed in the 13 states totaled 1,926,000 head during the July-September quarter—up 1% from the same months last year. The Corn Belt showed an increase in placements of 3% while the four western states were down 2%. Fed cattle marketed from 13 states during the July-September period at 2,597,000 head were 10% above the third quarter of 1957. The 99,000 short fed cattle marketed (cattle both placed and marketed during the quarter) were 15% below the same quarter last year.

Cattle feeders reporting marketing intentions in the 13 states indicated that 2,486,000 head are expected to be marketed during October, November and December. During these three months last year 2,255,000 head were marketed. Of the total number on feed on Oct. 1, 26% are expected to be marketed in October, 21% in November and 22% in December. Present plans are to market the remaining 31% after Jan. 1.

L. E. BOPST

(Continued from page 1)

the man who served as secretary for 31 years.

W. C. Geagley, control official from Lansing, Mich., and president of the association in 1933, spoke briefly at the banquet as Mr. Bopst was honored. He pointed out, among other things, that Mr. Bopst exemplified the modern spirit of cooperation and the idea of corrective law enforcement, being both firm and sympathetic to problems.

Mr. Bopst, in response, noted that when he was first elected secretary, the primary duties were to record minutes of the annual meeting and edit the association's publication. But duties grew, and after about 15 years, the office became considerably more of a full time job than had been anticipated. However, he added, he feels that "service to others is like rent for space on earth," and he has been happy to serve.

The banquet at the Shoreham Hotel was held in special recognition of the golden anniversary of the AAFCO, which was formed in 1909. The theme of the evening was "reminiscing," and elder statesmen of both the control group and industry did the reminiscing. For the association it was Dr. J. W. Kellogg, retired control official who served in Pennsylvania and elsewhere and was president of the association in 1919. Representing industry was Thomas C. Law, Law & Co., Atlanta. Both men recalled the development of the association and control work, and both devoted special attention to the increased cooperation between control officials and industry even though the industry and complexities have grown very rapidly.

Ralph Kneeland of the Food and Drug Administration, Washington, 1958 president of the AAFCO was toastmaster at the banquet, attended by both control and industry people. Invited guests included trade association officials, veteran control officials, trade press representatives and others.

DULUTH GRAIN MAN DIES

DULUTH, MINN.—George G. Barnum, Jr., retired Duluth grain firm executive, died recently at his home. He was 72. Mr. Barnum had retired in 1951 as general manager and senior executive officer of the Duluth elevator division of General Mills. Surviving are his wife and a son, George III.

FTC

(Continued from page 1)

relevant to the investigation." (The FTC investigation resolution is published below.)

Preliminary inquiries reveal here that this as not to be a witch hunt or a punitive examination of food industry practices. It is probably to become a constructive move on the part of FTC to set up reasonable ground rules for the economic development of food distribution and sales, and thereby end some practices which in many quarters have been described as vicious.

It is not an attack on the supermarket operations as such to a point where it would provide a return of the so-called "mom and pop" corner grocery stores.

Feed Industry "Dynamite"

However, it carries much latent and potent dynamite for the end products of the feed industry, such as livestock, poultry and eggs and fresh fruits and vegetables.

This FTC action might reasonably appear as a projection of the hearings, held by the last session of Congress by the Brown small-business subcommittee, into the integration problems of the poultry industry, or the egg colony operations, or in the trademark problems of the packing industry.

Trade reaction available here is one of caution, fearing that administrative agency investigations might burst original bounds and branch off into uncharted areas. A fortunate aspect of the FTC move in this field is that it has headed off congressional activity which might have developed next year when a new Congress convenes.

At this time, without access to the FTC blueprint of operation (Feedstuffs hopes to publish this next week), information indicates that FTC plans to back off the investigation from the supermarket level through brokers, distributors, processors and manufacturers, and country-point shippers, to ascertain the effect of the big-order buyers on the distributive chain.

Obviously this type of examination would involve the integrated poultry operator, the egg colony management and the "pig parlor" venturer.

The last big case of FTC of this kind involved the suit against the Atlantic Commission Co. held in a federal court in Danville, Ky., nearly 10 years ago. Then the FTC charged the A. & P. Co. with restraint of trade as it operated through its buying subsidiary, the Atlantic Commission Co. The government won that case, which resulted in a virtual end of the Atlantic Commission Co. as an adjunct of the A. & P.

FTC could move into the poultry integration industry and other such operations to ascertain mark-ups and margins from the integrated operators. Again it should be emphasized that it should not be expected that FTC in this instance will move in the punitive manner of the old Senate Gillette Committee which ventured into the spread between farm and retail market levels.

It must be dismissed that the FTC action will be a witch hunt.

This FTC decision to move in this field is the result of a year-long running conference with other federal agencies such as U.S. Department of Agriculture, among others, to determine existing critical merchandising problems.

The best information available here this week is that FTC plans primarily to find the basis for the establishment of ground rules wherein the injured party may find access to relief or protection from the huge impact of the buying power of the big supermarket chain stores.

As mentioned before, such an investigation would involve any operations of poultry integrated operators, egg colonies and swine integration. It would also involve the impact of fabricated cuts of beef and pork products at supermarkets, which has made inroads on the expensively-established brand names of hams and pork products.

The supermarkets will certainly be the target of the investigation, wherein the items of shelf-space in the big stores will be the object of investigation.

The best that can be said now is that for a period of at least two years the FTC will make excitement for the entire food industry, all the way from the producer to the retail outlet. It may be healthy.

GEAPS to Hear Talk By Robert Liebenow

CHICAGO — Chicago area Grain Elevator & Processing Superintendents will hear Robert Liebenow, president of the Chicago Board of Trade, discuss "Developments and Opportunities in the Grain Trade" at a dinner meeting Oct. 21.

The meeting will be held at 6:30 p.m. at the Board of Trade Restaurant. Wives are welcome, and the members are especially urged to bring grain buyers with them.

FTC Food Industry Resolution

The FTC resolution—"Inquiry Into the Competitive Methods and Practices Used in Marketing Food"—is as follows:

WHEREAS, a substantial percentage of all antimonopoly investigations by the Federal Trade Commission is of alleged violations of law by parties in the food industry; and

WHEREAS, the Commission has received many complaints that in the evolution of food distribution in recent years there have developed tendencies to concentration of economic power, to collusive price action and to unfair competitive methods; and

WHEREAS, there is broad public interest in preserving competitive free enterprise in the food industry and in preventing unfair methods of competition in that industry; and

WHEREAS, it appears to the Commission that, for the reasons stated herein, and for the purposes set forth in Section 6 of the Federal Trade Commission Act, an investigation of the food industry by the Federal Trade Commission would be in the public interest;

NOW, THEREFORE, BE IT RESOLVED that the Commission in the exercise of the powers vested in it by Sections 6 and 9 of the Federal Trade Commission Act, and with the aid of any and all powers conferred upon it by law and any and all compulsory processes available to it, do forthwith proceed to investigate and study the integration and concentration of economic power at the retail level of distribution in the food industry, which investigation and study shall include consideration not only of the organization, business, conduct, practices, and management of corporations engaged in commerce and which sell food products at the retail level of distribution but shall also include investigation and study of corporations operating as wholesalers, manufacturers, distributors, brokers, or otherwise concerned with the distribution of food products in commerce to the extent that a consideration of their organization, business, conduct, practices, and management is relevant and pertinent to the aforesaid investigation and study.

By direction of the Commission.

Robert M. Parrish,
Secretary

SPENCER KELLOGG

(Continued from page 1)

Spencer Kellogg permitting expansion of Staley under a long-range planning program.

Spencer Kellogg, a pioneer in the vegetable oil business since 1824, first entered the field of feed manufacturing in June, 1957, by merging with the Beacon Milling Co., Cayuga, N.Y. The latter was the largest independent feed manufacturer in the northeastern part of the U.S. Similarly, Staley is considered one of the largest independent feed manufacturers in the Midwest.

Tell Merger Plan

The Spencer Kellogg announcement said in part: "Spencer Kellogg has thus far elected to enter the field of feed manufacturing by the purchase of existing units rather than building additional production facilities. We feel that we are very fortunate in being able to acquire the assets and inherit an organization of a company which has been such an outstanding success over a period of many years. Further advantages, such as an exchange of information on research, advertising and sales programming with Beacon Milling, will likewise be advantageous to the entire organization. Spencer Kellogg in turn will have an added outlet for its end products."

Simultaneous with the Buffalo announcement, Thomas W. Staley, president of the Kansas City firm, disclosed the merger and added, "As a part of Spencer Kellogg & Sons, we shall be able to serve more adequately and more progressively than ever before."

"This industry that we and our dealers are in is a fast-changing one," he continued. "Research on a broad base, ample resources and a completely rounded staff are necessary for continuing progress. Spencer Kellogg is deep in research, a good merchandiser and most progressive. Now we are not only associated with Beacon, but also are a part of a firm that we have done business with for more than 30 years. I am happy for my associates, our hundreds of loyal dealers, for our customers and for myself."

Mr. Staley went on to emphasize that the firm would continue to operate as Staley Milling Co., but as a division of Spencer Kellogg. Its feeds will continue under the same identification, such as Professional Feeds, Pig Mama, Pig Kisses, Chick Atoms and Karmels. "And our customers will have the same close relationship as always with Maurice Johnson, executive vice president; Joseph Cooper, vice president in charge of the St. Louis division of Staley, and with me in both our Kansas City and St. Louis offices," he added.

Total Operations

Spencer Kellogg has eight processing plants for vegetable oils, one at Buffalo and the others at Bellevue, Ohio; Chicago and Decatur, Ill.; Des Moines, Iowa; Edgewater, N.J.; El Centro and Long Beach, Cal., and Minneapolis. The Kellogg family is credited with pioneering the crushing of flaxseed in 1824, and now also produces other vegetable oils such as soybean, castor, coconut, cottonseed and others. An estimated 40% of the firm's meal production from these crops goes into feed manufacturing.

Beacon Milling operates five mills in the eastern states, at Cayuga and Eastport, N.Y.; Laurel, Del.; York, Pa., and Broadway, Va., with total capacity of an estimated 500,000 tons annually.

The Staley Milling Co. was founded in 1925 by J. A. Staley, who was president until only a few years ago, when his son, Thomas W. Staley, assumed the position. The elder Mr. Staley is still living. The Missouri firm is largely family-owned.

Staley has an annual formula feed capacity of 200,000 tons. In addition, it has capacity for dry milling annually about 2 million bushels of corn. It also has a research farm near Liberty, Mo. The firm's push-button plant in Kansas City was completed in 1956, while the East St. Louis mill was modernized to a push-button operation in 1957. The first step of planned Spencer Kellogg expansion is already under way, consisting of installation of modern packaging and loading equipment and the addition of 250 tons of bulk storage space for finished feeds.

The Staley dealer organization continues with the same products, same warehouses and mills as their suppliers, said Mr. Staley, adding that the firm has dealers in nearly 2,000 towns.

Mr. Staley has been chairman of the board of the American Feed Manufacturers Assn., while Maurice Johnson is currently vice president of the Midwest Feed Manufacturers Assn.

AAFCO

(Continued from page 99)

learn more about nutrient requirements, feeds can be more nearly built to meet the requirements and still better utilization will result.

Feed manufacturers today conduct research for three reasons: (1) To improve their feeds, lower costs, etc. (2) Use of their farms for demonstration and promotion purposes. (3) Building confidence, so that people in the firm will know that a feed is doing a good job.

At times, because of market conditions, lower cost ingredients can be used which will allow lower cost production, even though feed per unit of gain may increase. It is necessary in evaluating feeds to consider economics, the lowest cost per pound of gain.

THE NATIONAL FEED INGREDIENTS ASSN.—Peter W. Janss, executive secretary, Des Moines: The real feeling of cooperation between feed control officials and industry which has developed during the past few years in particular is without parallel and has been of great help to industry.

The new National Feed Ingredients Assn. (NFIA), expanded from the former National Minerals Feeds Assn., includes ingredient manufacturers, brokers, drug manufacturers if they wish to belong and feed manufacturers who wish to be members. There were feed manufacturers in the former group who wished to stay in the new association. We feel that both ingredient and feed manufacturers can be in the same group, with mutual benefits.

The NFIA does not aspire to serve any part of industry already served by another trade association. We are trying to "patch up the holes" and serve areas not now served.

We think that we can sectionalize within the over-all group, with sections for such things as minerals, drugs, vitamins, etc., and all operating under the over-all board. We also hope to have association-sponsored research, with possibly the various sections sponsoring certain studies.

Senator to Speak At Mississippi Meeting

EDGEWATER PARK, MISS.—The Mississippi Poultry Improvement Assn. annual convention will be held at the Edgewater Gulf Hotel here, Oct. 27-29, it was announced.

Highlight of the activities will be an address by Mississippi Senator J. O. Eastland.

Topics included in the three-day program will range from "How to Stay in the Poultry Business" to "Hatching Egg Contracts and Financing."

Use Feedstuffs WANT ADS for RESULTS

ANRC

(Continued from page 6)

sis. For example, the digestibility of one fish meal appeared to be reduced because all the amino acid studies were only partially available.

A commercial fish meal of recognized high quality proved to be an excellent source of all the amino acids studied. Various vegetable proteins, as well as meat and bone meal, showed fairly wide variations in levels of available amino acids. Some of the results of the studies provide an example of how processing of a feedstuff affects amino acid availability.

Chemical and Biological Methods for Determination of Amino Acids in Feedstuffs — Dr. V. L. Frampton, Southern Regional Research Laboratory, U.S. Department of Agriculture, New Orleans: The pace of advancement in research on the protein nutrition of meat animals has been set by the rate of advancement in the development of methods for protein analyses, especially in the analyses for individual amino acids in protein hydrolyzates. In the earlier days the task of separating and determining all of the amino acids in a protein hydrolyzate was an extremely difficult one. This was so because of the marked similarities in the chemical and physical properties of several of the amino acids.

The introduction of newer techniques in analytical procedures in the past 15 years has reduced the uncertainties and difficulties in the analyses of individual amino acids in protein hydrolyzates to a considerable extent. The improvement in analyses has been effective in emphasizing areas of uncertainties for amino acids that are associated with the hydrolysis of proteins where amino acids are destroyed and artifacts produced. These uncertainties are more serious when feedstuffs are analyzed because of the presence of extraneous materials, especially carbohydrates.

(Dr. Frampton went on to discuss the reliability of the microbiological and chromatographic methods of amino analyses in relation to their use in analyses for critical amino acids in feedstuffs. He indicated that with microbiological methods, a person must be highly skilled and recognize problems involved. His personal preference, he said, is for a chemical or physical procedure using the chromatographic method.)

The Use of Amino Acid Values in Formulation of Feeds—Dr. H. S. Wilgus, Ray Ewing Co., Pasadena, Cal.: It is becoming increasingly recognized that adequate amino acid balance is necessary in rations not only for broilers but also for non-ruminating animals of all ages and purposes. The nutritionist formulating rations is faced with serious difficulties in attempting to provide optimum amino acid patterns. The difficulties include such things as lack of information on certain amino acid requirements. Various factors which affect requirements and lack of agreement on certain amino acid values of feedstuffs.

While awaiting useable solutions to these various problems from research laboratories, the practical nutritionist can make excellent use of existing knowledge by utilizing judgment and logical assumptions, tempered by experience. The following suggestions are offered:

1. Use of available information on amino acid requirements.

2. Formulating rations on the basis of amino acid adequacy rather than in terms of protein or to meet arbitrary protein levels will expedite attainment of better biological efficiency and help avoid the influence of excesses and inadequacies.

3. The energy content of the assay rations on which amino acid requirements are determined should be given so that the amino acid levels in a given ration may be adjusted in proportion to the extent to which the energy content of the desired ration influences feed intake above or below that expected from the energy content of the assay ration.

4. Metabolizable energy appears to be the most practical expression of caloric value for the feed formulator.

5. Average values for amino acid composition of ingredients should be brought into agreement and revised at frequent and regular intervals. These should include the synthetic sources in terms of true amino acid activity.

6. Greater use should be made of assays, such as water-soluble nitrogen (cottonseed meal), protein digestibility (fish and meat products) and available lysine, as indicators of the biological availability of amino acids in processed ingredients.

7. Due consideration should be given to other major nutrient contributions when comparing the relative cost of different ingredients as sources of an amino acid.

Regimentation of thought or action is not advocated or implied by these remarks. However, some degree of uniformity should be achieved in the expression of our scientific knowledge on a practical plane so that application on a more accurate basis can be attained by the feed nutritionist.

Amino Acid Requirements of Laboratory Animals, Including Dogs—Dr. James B. Allison, Rutgers University, New Brunswick, N.J.: The retention of dietary nitrogen in the body of the animal for growth of new tissues and for maintenance of old is a function of a number of factors associated with the diet and the physiological state of the individual. It has been shown that the amount of nitrogen retained is governed by the pattern of dietary essential amino acids together with the nitrogen intake, while the rate of synthesis is a function, within limits, of the caloric intake.

An estimate was made of the minimum intake of each essential amino acid found in various dietary proteins fed in amounts that would produce nitrogen equilibrium in the adult or a constant amount of growth in the young animal.

(Dr. Allison presented certain amino acid patterns which were calculated by assuming that the limiting intake of each essential amino acid in the variety of proteins fed represented the requirement for these responses.)

The nitrogen intake and the pattern of dietary amino acids also affected the composition of the tissues in the animal. A deficient nitrogen intake affected both protein and lipid metabolism, resulting, for example, in an increase of certain plasma lipids migrating with the globulin fractions. Similarly, deviations from the amino acid patterns which were presented also altered the rate and kind of protein synthesis as well as lipid metabolism. The data indicated that if the biological value of the dietary protein was less than approximately 60, the pattern of amino acids should be improved to obtain a normal development of body tissues.

Amino Acid Requirements of Poultry—Dr. Richard S. Gordon, Monsanto Chemical Co., St. Louis: Since the National Research Council established the amino acid requirements of poultry in 1954, many conflicting reports have been issued on this subject. In these more recent studies, the investigators have utilized purified and semi-purified, as well as practical, diets. In spite of this, there appears to be little reason to alter the NRC recommended requirements for amino acids. It should be clearly understood, however, that these requirements apply to one specific level of protein and calories. The more important reasons why it appears unwise at this time to make any major change in the NRC requirements, despite the abundance of new work, are:

1. The protein sources used in these reports differed markedly in amino acid availability and content.

2. Very often the energy level remained an uncontrolled variable.

3. Too little attention was paid to the absolute growth rate, feed conversion or egg production obtained, while too much attention was paid to relatively small differences in performance between supplemented and unsupplemented groups.

4. In several of the studies, where it was concluded that the NRC requirements should be changed, the influence of other metabolic intermediates on the requirements for that amino acid was ignored.

The more recent studies lead one to believe that the challenge of the future is in the evaluation of the factors which modify amino acid requirements in a predictable way; that is, it appears that the NRC requirements are more useful as estimates of the relative ratios or balances of amino acids required than they are as estimates of minimum or maximum levels that must be present in a specific ration.

(Dr. Gordon went on to discuss factors known to modify amino acid requirements in a predictable way. These points included: (1) Effect of protein quality on amino acid requirements, (2) Translation of NRC requirements to practical diets, (3) Proportion of dietary energy content to protein content as the prime determinant of the amino acid requirement, (4) Amino acid requirement as a function of growth rate, feed conversion or egg production, (5) Metabolic factors affecting amino acid requirements, (6) Physiological factors affecting amino acid requirements.

What kind of new information will justify alteration of present NRC amino acid requirements for poultry? The "true" requirement can only be approximated as long as we must contend with data obtained by supplementing deficient proteins, since these proteins not only contain different amounts of amino acids but also vary in availability of each amino acid for poultry, it will be difficult to relate requirements determined with a specific group of proteins to diets containing a different group of proteins until: (a) better methods for the determination of the amino acid content of feedstuffs are at hand, so that (b) calculations of coefficients representing the percentage of an amino acid actually utilized by the bird for a given feedstuff can be made, and finally so that (c) calculation of a regression equation based on all nutrient inter-relationships can be made to predict weight, feed conversion and egg production.

One generally finds that reports alleging that the requirement for a given amino acid ought to be changed fail to consider some of the factors considered here; that is, the "new" information is useful only for the specific diets employed. . . . The use of Almquist's method to predict requirements for a specific diet ought to be more generally applied with a proviso that knowing a specific requirement is only half of what one needs to know. The other half is how the bird's requirement for a specific amino acid for a specific diet will be altered when other dietary constituents are altered.

Amino Acid Requirements of Swine and Cattle—Dr. H. B. Geurin, Ralston Purina Co., St. Louis: The essential amino acids for the weanling pig and their required level under conditions of purified ration test procedures are (adapted from NRC recommendations): L-arginine, 0.2% of total diet; L-histidine, 0.2%; L-isoleucine, 0.7%; L-leucine, 0.6%; L-lysine, 1.0%; Dl-methionine, 0.6% (one half of this level can be replaced by cystine); Dl-phenylalanine, 0.46% (a portion of this level, perhaps half, can be replaced by tyrosine); L-threonine, 0.4%; Dl-tryptophan, 0.2%; L-valine, 0.4%.

Many references in the literature suggest widely varying amino acid requirements for pigs, and basically all of these research reports are right. A careful study indicates various ration changes do have a marked effect on the swine amino acid requirements. With other things being equal, the following changes have been observed to increase the measured requirement for one or more of the essential amino acids: An increase in protein level, an increase in energy level, a decrease in pig weight, an increase of another limiting amino acid, an increase in protein digestibility, a decrease in non-essential amino acids, a decrease of certain related nutrients, a decrease in moisture content, an increase in growth rate, and an increase in some other essential nutrient.

To help clarify the existing swine amino acid requirement picture more work is needed on various effective amino acid forms; the relations of each essential amino acid on ration changes in protein, energy, related nutrients and other nutrients; requirements at various stages and rates of growth; the effect of ample non-essential amino acids; the digestibility of each amino acid in feedstuffs, and characterizing successive amino acids in practical rations.

Research results have indicated the amino acid requirements of cattle are considerably less critical and demanding as compared to swine or as compared to other nutrient needs of cattle.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
August 9	1,142	557	895	993	179	755	1,929	1,795
August 16	1,180	603	924	880	210	728	1,907	1,831
August 23	1,124	657	827	851	194	671	1,668	1,853
August 30	1,071	623	940	886	187	643	1,759	1,798
September 6	1,022	600	938	870	226	628	1,483	1,930
September 13	1,070	536	758	864	142	583	1,566	1,763
September 20	878	513	692	752	180	552	1,371	1,714
September 27	1,009	551	680	732	152	495	1,450	1,789
October 4	1,103	433	767	760	202	567	1,601	1,674
October 11	1,087	489	584	727	159	570	1,576	1,690

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
August 9	1,329	669	2,606	413	5,819	224	2,748	1,910
August 16	1,374	649	2,493	384	5,718	192	2,753	1,813
August 23	1,301	652	2,478	366	5,360	200	2,571	1,695
August 30	1,163	639	2,395	361	5,093	171	2,417	1,649
September 6	1,188	537	2,337	309	4,879	202	2,366	1,658
September 13	1,138	589	2,341	321	4,648	215	2,391	1,553
September 20	1,015	497	2,329	292	4,573	151	2,293	1,600
September 27	1,059	423	2,245	332	4,602	178	2,239	1,649
October 4	956	563	2,351	313	4,927	144	2,382	1,723
October 11	1,039	478	2,398	344	4,942	151	2,525	1,639

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1958	1957
August 9	2,934	443	2,282	388	179	1,049	31,246	27,055
August 16	2,778	392	2,196	374	205	978	30,541	26,625
August 23	2,816	457	1,948	359	165	905	29,098	25,934
August 30	2,587	373	1,869	344	125	824	27,886	25,490
September 6	2,381	395	1,898	359	168	878	27,218	25,228
September 13	2,283	400	1,740	342	176	916	26,335	25,028
September 20	2,165	356	1,618	249	193	821	24,803	24,298
September 27	2,242	309	1,469	287	175	829	24,896	24,134
October 4	2,405	371	2,023	247	123	871	26,506	24,675
October 11	2,416	404	2,165	272	149	770	26,574	24,237

MARKETS

(Continued from page 2)

with storage and capital which will mean that the distress prices which have prevailed for several weeks will not be available. As a result, many feed mills have advanced bid prices in order to draw out additional supplies and to keep the flow of locally produced corn moving from shelling plant to feed mill.

There has been heavy export inter-

est in southeastern-produced soybean meal this week. Supplies have been drawn from Illinois as well as from Mississippi valley producing points, which has kept considerable pressure on the nearby position within the Mississippi valley, and asking prices have remained firm. Soybeans are just beginning to get under way in Arkansas, Mississippi and other southeastern states, and supplies of meal should catch up with decreasing demand in the very near future.

There is a strong underlying demand evident within the market for additional supplies of ground snap corn, cobs and shucks, cottonseed hulls and other roughage materials which are relatively cheaply priced at the present time but are expected to advance sharply with the coming of cold weather.

Dairy feed business continues to pick up and is expected to get progressively better as cold weather gets closer. The mixed feed business on particularly cattle and hog feeds is expected to decline at least temporarily due to feeding of home grown grains in order for the farmer to realize better prices for grain products than he can get by selling outright.

Cattle and hog prices in the area have held extremely well and this, no doubt, will have some effect on feeding operations.

Pacific Northwest

Quotations for major feed ingredients averaged lower during last week's Pacific Northwest feedstuffs market trading with further cuts for soybean, meat and bone meals along with wheat millfeed and most grains.

The lone exception to following the downward trend was fish meal which gained 5¢ a protein unit.

Demand appeared lower for all classes of buyers and purchases continued to be confined to a hand-to-mouth basis. Interest in forward positions was restricted by abundant feedstuff and feed grain supplies.

Soybean meal listings declined $2 ton while meat and bone meal values lost $2.50 ton with millfeeds unchanged to 50¢ lower and whole barley, corn and milo finishing down 50¢. Barley held unchanged.

Although formula feed sales in Oregon and Washington were reportedly a little smaller than the previous week, total volume was considered good for this season of the year.

Broiler feed sales continued fair despite unfavorable feeding ratios reflecting a 15¢ lb. price to Willamette valley growers, f.o.b. ranch.

Turkey feed sales showed a further tapering off in the face of fairly heavy marketings while laying mashes moved a little better on a seasonal basis.

Oregon range conditions Oct. 1 averaged 80%, according to the USDA. This is the same as in September and 2 points higher than both one year ago and the 10-year average. Washington range conditions on the other hand were reported as the lowest level for this date since 1949.

South Central

Formula feed sales have been steady this week, holding close to the rate established in September. "Demand is remarkably good," said one feed manufacturer, "considering the weak undertone to price lists and the competition of new crop feed grains."

Hog and pig feeds are the best moving items. Although there are still a lot of pigs in the grower age bracket around, ample supplies of new corn are causing feeders to shift from grower feeds to supplements.

A similar change is showing up in layer feeds. Several mills report improved sales of layer concentrates to their grinding and mixing trade while their egg mashes are finding an indifferent demand. Cattle feeds are beginning to show some life. Mills report a mixed response to booking plans for these feeds. Several mills are well satisfied with results so far, while others report little interest from the areas that they work in.

Running time for the mills is holding steady at five days, one or two shifts. Price lists are expected to show another reduction.

Central States

Feed business continued slow in the central states during the week ending Oct. 15. Although mills generally were running normal schedules, observers said the market lacked bounce. Buyers are taking on supplies for immediate use, deferring inventory building until later.

This type of trading is fairly normal for this time of year, spokesmen for feed manufacturers say, since the harvest season is on and new crop supplies are entering trading channels. Price structures for many commodities are weakened and the tendency is to wait until the full impact of increased supplies is accounted for by the market, hoping to rebuild inventories at the lowest possible price.

Soybean oil meal declined further during the period, and feed prices gave around $1@2 ton. Some sources believe the decline has about run its course and a buying level is approaching. Even with sales slowing from the fast pace of the last several months, mills generally are running full time. Because of short notice on orders, however, some difficulties in scheduling production are being experienced.

Ohio Valley

Although mid-summer weather returned this week in the Ohio Valley, following a brief period of freezing temperatures, sales of formula feeds held steady, despite the plentiful farm crops, late harvesting activities and anticipated declines in feed prices.

Observers said they believe the quite satisfactory sales volume at this time is a reflection of the continuing good prices for farm animals, eggs and crops, and the steady build-up of herds and flocks, along with their fattening for winter and spring marketing.

Prices at area stockyards and wholesale markets have been showing no downward trend, with offerings being snapped up readily, without carryover. With egg receipts insufficient for retail requirements this week, prices advanced up to 4¢ doz.

Operating schedules are being maintained at most valley manufacturing plants this week on a five-day, two-shift basis, with several mills finding it necessary to continue their seven-day schedules of recent weeks.

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